Report to Congress:

Developing a Prospective Payment System for Excluded Hospitals

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HCFA Pub. No. 03262

THE SECRETARY OF HEALTH AND HUMAN SERVICES
WASHINGTON, D.C. 20201

OCT 9 [illegible]

The Honorable George Bush
President of the Senate
Washington, D.C. 20510

Dear Mr. President:

The Social Security Amendments of 1983 (P.L. 98-21) established the statutory framework for the Medicare PPS. PPS generally applies to all hospitals participating in the Medicare program, with certain exclusions, exemptions, and adjustments specifically set out under the law. At present, four classes of specialty hospitals—children's, psychiatric, rehabilitation, and long-term—and two types of distinct-part units in general hospitals—psychiatric and rehabilitation—are excluded from PPS and reimbursement to these hospitals is limited by target ceilings established under the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA).

Section 603(a)(2)(C)(ii) of P.L. 98-21 requires the Secretary of the Department of Health and Human Services (DHHS) to include the results of research studies on whether and how these excluded hospitals and units may be included under PPS. This Report to Congress, entitled Developing a Prospective Payment System for Excluded Hospitals, is prepared in response to the legislative mandate.

In response to the legislative mandate, the Health Care Financing Administration has undertaken and funded a wide range of research studies over the last 3 years. This Report to Congress reviews these research studies for each hospital class—children's, psychiatric, rehabilitation, and long-term.

The findings from these studies are briefly summarized as follows:

Children's Hospitals

Children's hospitals receive substantial State Medicaid revenues. A research study conducted by the National Association for Children's Hospitals and Related Institutions has developed revised diagnosis-related groups (DRGs) for pediatric discharges. The feasibility and advisability of this revised payment system will be evaluated over the next 1-2 years.

Psychiatric Hospitals and Distinct-Part Units

Numerous research studies conducted inside and outside of DHHS confirm that the current psychiatric and substance abuse DRGs do not predict hospital resources. A study funded by the National Institute of Mental Health is exploring the feasibility of developing alternative DRGs and payment adjustments for psychiatric facilities.

Rehabilitation Hospitals and Distinct-Part Units

Rehabilitation hospitals receive 45-50 percent of their revenues from the Medicare program. A study conducted by the Medical College of Wisconsin and The Rand Corporation indicated that patient measures not currently available on Medicare data bases (e.g., functional status measures) substantially improve the prediction of hospital resources. Additional studies are developing patient assessment measures that would predict hospital-level rehabilitation resources, and exploring the feasibility of using a diagnosis based payment system adjusted to achieve payment equity.

Long-Term Hospitals

Long-term hospitals are a heterogenous set of institutions, located on the Eastern Seaboard, whose mission is the treatment of patients who are seriously or terminally ill with multiple diseases. In other regions of the country, these same patients would be treated in hospitals or skilled nursing facilities. A separate PPS for these institutions would appear undesirable.

With regard to all four classes of excluded facilities, the development of a PPS is being considered within the context of the Administration objective of a capitated payment system for Medicare services.

Sincerely,

Otis R. Bowen, M.D.
Secretary

Enclosure

THE SECRETARY OF HEALTH AND HUMAN SERVICES
WASHINGTON, D.C. 20201

OCT 9 1987

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Speaker of the House of Representatives
Washington, D.C. 20515

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ACKNOWLEDGEMENTS

Primary responsibility for this report was assigned to the Health Care Financing Administration (HCFA), Office of Research, Allen Dobson, Ph.D., Director. Patricia Willis, Ph.D., of the Division of Reimbursement and Economic Studies (DRES) of the Office of Research served as the Project Director and author of the Executive Summary. John C. Langenbrunner of DRES served as the Principal Investigator and primary author of the report. Other contributing authors included: Stephen Jencks, M.D., who served as author of the psychiatric hospital discussion in Chapter 3, and William Sobaski, Director of DRES. Kathleen Walker of DRES coordinated word processing responsibilities through several drafts.

Several HCFA-funded studies and background papers provided the primary research and background essential to the development of this report. The National Association of Children's Hospitals and Related Institutions, Inc., undertook the children's hospital case-mix classification system project under a HCFA Cooperative Agreement. Robert Gregg, M.D., served as Principal Investigator. Joseph Restuccia, Dr. P.H., and Susan M. C. Payne, Ph.D., both of the HCFA Research Center at Brandeis and Boston Universities, authored a paper on "Options for Paying Children's Hospitals on a Prospective Basis."

On the topic of psychiatric hospitals, Thomas McGuire, Ph.D., Constance Horgan, Sc.D., Howard Goldman, M.D., and Leonard Saxe, Ph.D.,--all of the HCFA Research Center at Brandeis and Boston Universities--authored a paper on "Options for Including Psychiatric Hospitals and Exempt Psychiatric Units Under the

Medicare Prospective Payment System." In addition, Macro Systems, Inc., under contract to the National Institutes of Mental Health, provided "A Study of Patient Classification Systems for Prospective Rate-Setting for Medicare Patients in General Psychiatric Hospitals and Psychiatric Units."

On the topic of rehabilitation hospitals, the HCFA Research Center at the Rand Corporation and the Medical College of Wisconsin, under a HCFA Cooperative Agreement, examined the advisability and feasibility of a case-mix classification system and payment system for rehabilitation hospitals and distinct-part units. Robert Kane, M.D., of the Rand Corporation and the University of Minnesota, and John Melvin, M.D., of the Medical College of Wisconsin, served as Principal Investigators. The final report, submitted in draft in the fall of 1985, is published through the Rand Corporation and authored by Susan Hosek, Robert Kane, Maureen Carney, Janice Hartman, David Reboussin, Carl Serrato, and John Melvin. Lisa Iezzoni, M.D., of the HCFA Research Center at Brandeis and Boston Universities, commented in detail on the design and results of this project.

For long-term hospitals, Michael Shwartz, Ph.D., Sandra Tanenbaum, Ph.D., and Patricia Berry, all with the HCFA Research Center at Brandeis and Boston Universities, developed an analysis and payment options paper for this class of hospitals.

Also deserving mention is the Technical Advisory Panel assembled by HCFA to offer assistance in the development of PPS-related studies. This panel, composed of individuals with recognized expertise in the field of health care financing, heard and discussed the analyses and findings of these studies and provided helpful suggestions.

Finally, appreciation is due the many persons within HCFA and the Department of Health and Human Services who reviewed this report to add to its content and quality.

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EXECUTIVE SUMMARY

The Social Security Amendments of 1983 (P.L. 98-21) established the statutory framework for the Medicare hospital prospective payment system (PPS). Under PPS, the Medicare program is paying hospitals in 48 States and the District of Columbia on the basis of a prospectively determined price for each type of case.1/ At discharge, each case is classified into one of about 470 diagnosis-related groups (DRGs). Medicare pays, based on the DRG, an amount that is published at the beginning of the fiscal year—that is, "prospectively."

PPS generally applies to all hospitals participating in the Medicare program, with certain exclusions, exemptions, and adjustments specifically set out under the law. At present, four classes of specialty hospitals—children's, psychiatric, rehabilitation, and long-term—and two types of distinct-part units in general hospitals—psychiatric and rehabilitation—are excluded from PPS.

These hospitals and units are presently excluded from PPS without a time limitation for inclusion; however, the Secretary of the Department of Health and Human Services (DHHS) was mandated to include in the annual Report to the Congress on the Impact of Prospective Payment Methodology of 1985 the results of research studies on whether and how these excluded hospitals and units may be included under PPS. This Report to Congress, entitled Developing a Prospective

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1/ Hospitals outside the 50 States and the District of Columbia are excluded from PPS. Hospitals in Maryland and New Jersey are currently waived from inclusion in the PPS because they meet legislated waiver criteria (under P.L. 98-21) or because they are participating in demonstrations of other payment systems. Hospitals in Massachusetts and New York were waived from PPS inclusion through September 30 and December 31, 1985, respectively.

Payment System for Excluded Hospitals, is prepared in response to the legislative mandate. According to the 1983 Amendments:

> In the annual Report to Congress under subparagraph (A) for 1985, the Secretary shall include the results of studies on whether and the method under which hospitals, not paid based on amounts determined under such section, can be paid for inpatient hospitals services on a prospective basis as under such section. (Sec. 603(a)(2)(C)(ii).)

In response to the legislative mandate, the Health Care Financing Administration (HCFA) has undertaken and funded a wide range of research studies over the last 3 years regarding the inclusion of the four classes of facilities excluded under PPS. The results from additional studies conducted outside of HCFA have also been monitored. This Report to Congress reviews these research studies for each hospital class—children's, psychiatric, rehabilitation, and long-term. The research findings are examined to determine whether they support legislative and regulatory recommendations for inclusion of each class of facilities under PPS. The progress towards the development of a prospective payment system for these facilities is also evaluated in the context of the longer-range direction of Medicare reform towards a capitated payment system. These deliberations inform the policy implications and directions for future research and legislation that are proposed for each class of excluded facilities.

Understanding the Excluded Hospitals

The Medicare PPS is an empirically based system to the extent that average payment for services is derived from past experience and historical costs

associated with patients in individual DRG categories. This design feature of PPS led to congressional consideration of exclusion for certain groups of hospitals. Indeed, the exclusion subsequently legislated for the four specialty classes of hospitals was based explicitly on the fact that the national data base used for creating the DRGs either did not include or underrepresented these groups.2/

The DHHS Report to Congress: Hospital Prospective Payment for Medicare (1982) recognized this deficiency, stating that the "467 DRGs were not designed to account for these types of treatment" found in the specialty classes of hospitals, and noted that "including these hospitals will result in criticism. . .(and) their application to these hospitals would be inaccurate and unfair." This latter phrase reflects a further and more implicit reason for exclusion of these hospitals--namely, that anecdotal data suggested that DRGs would work less well for these treatment classes than for other medical specialties. One problem was that the available evidence suggested that the resource needs of patients in these hospitals were not necessarily correlated with diagnosis. Another problem was that these facilities were part of a highly differentiated hospital delivery system in which they occupied different roles than general hospitals.

A total of 5,425 hospitals--or 81 percent of all hospitals in the United States--were operating under PPS as of the end of December 1985. In addition, nearly 2,000 certified hospitals and distinct-part units of hospitals--or 711 hospitals and

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2/ The HCFA-funded data base used by Fetter, Thompson, and colleagues to develop DRGs (Fetter et al., 1977, 1980, and 1982) was drawn from adult acute-care hospitals. No children's hospitals or freestanding psychiatric hospitals, for example, were included in the data base, so few of the patients typically treated in these types of hospitals were to be found in the sample. Furthermore, the Medicare, Michigan Medicaid, and Maryland all-payer cost data used to construct weights for DRGs not well represented in the national data base did not include sufficient data to support payment to these classes of hospitals.

1,254 distinct-part units--had received an exclusion under PPS. The distribution of the classes of hospitals and distinct-part units that received exclusion as of December 1985 is shown in Table E-1. The number of discharges and the total charges for Medicare beneficiaries in these facilities are given in Table E-2. Overall, charges for Medicare beneficiaries in excluded hospitals total over $1.5 billion per year, or roughly 3 percent of annual charges for inpatient hospital care.

There are several points about the nearly 2,000 facilities receiving exclusion status that need to be considered in research and policy development efforts. The first consideration is that to a certain extent the exclusion categories overlap because of the criteria developed from the original legislation. In particular, a hospital excluded on the basis of its average stay could very well have patients similar to those found in a hospital excluded as a psychiatric or rehabilitation facility.

A second consideration is that the very different proportions of Medicare payments that are associated with each class of excluded facilities will have profound implications for a Medicare prospective payment system for these facilities. Children's hospitals, for example, receive very few Medicare dollars, but perhaps as much as 45 percent of their revenues from State Medicaid programs. For psychiatric hospitals and units, the proportion of Medicare revenues is perhaps 10-15 percent. Rehabilitation hospitals and units receive perhaps 45 percent or more of their revenues from the Medicare program. Long-term hospitals receive a very small proportion from the Medicare program, presumably because of the Medicare coverage constraints on long periods of hospitalization. Again, the importance of revenues from State Medicaid programs for this last group of facilities is thought to be significant, although no systematic sources of information on Medicaid outlays are currently available.

TABLE E-1

Excluded Hospitals and Units under PPS

Specialty Type	December 1985
Children's	56
Psychiatric	
Hospitals	491
Units	331
Rehabilitation	
Hospitals	72
Units	423
Long-Term	92
Total	
Hospitals	711
Units	1,254
Total	1,965

Note: The numbers include data for hospitals and units in waivered States that meet the criteria for excluded hospitals and excluded units under PPS. These data are phased-in according to the fiscal year start dates of the facilities.

Source: HCFA/Health Standards and Quality Bureau Reports of Exclusion Activity.

TABLE E-2

Medicare Services in Excluded Facilities

Specialty Type	Number of Discharges	Total Charges (millions)	% Medicare Total Charges
Children's	1,755	$ 15.8	—
Psychiatric			
Hospitals	66,460	419.5	
Units	61,890	332.0	
Total	128,350	751.5	1.5%
Rehabilitation			
Hospitals	23,595	233.4	
Units	30,145	302.1	
Total	53,740	535.5	1.0
Long-Term	21,700	226.2	.5
Total	205,545	$1,529.0	3.0%

Source: Rand Corporation tabulations from HCFA files for calendar year (CY) 1984. (Note: These figures, which are slightly higher than those given in Tables 1-7 through 1-10 of the text, represent recent tabulations from more complete files for CY 1984.)

The third point contrasts the economic incentives of the cost-based system of limits under which the excluded facilities are currently reimbursed--commonly referenced as the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982 (P.L. 97-248)--with the incentives of a prospective price-based system. With the Social Security Amendments of 1983, the excluded hospitals and units continued to be reimbursed by Medicare under a system of limits based on reasonable and allowable costs as defined by TEFRA. Prior to the TEFRA legislation, hospitals were reimbursed by Medicare according to a system of limits for daily routine occupancy costs, plus the reasonable costs incurred for special and ancillary care. With the passage of TEFRA, reimbursement limits were extended to total operating costs per discharge. Upper limits for inpatient operating costs per case were established by Section 1886(a) of the Act, while Section 1886(b) established a target rate of increase (applied at the case level) that would result in reduced reimbursement if exceeded by a hospital or an incentive payment if a hospital did not exceed its limit. Each hospital's "target" became the lesser of the two limits. Since October 1, 1983, only the rate of growth ceiling provision has continued, and this has subsequently been modified and made more restrictive.

In effect, the TEFRA legislation established for each hospital a limit on inpatient operating costs per discharge. While the application of TEFRA limits has meant that excluded facilities do not participate in PPS, they still arguably function under a prospective limit-based system that contains economic incentives similar to those of PPS. Thus, from a strict cost-control perspective, expenditures of excluded facilities are subject to controls. Over time, however, TEFRA limits are not adjusted for changes in the case mix index of the excluded facilities, which may hold implications for the fairness of payments.

Developing a Prospective Payment System

The success of a prospective payment system for the excluded hospitals and units will be judged on the basis of its capability for promoting a cost-effective system of care for Medicare beneficiaries while maintaining a high degree of equity or fairness of Medicare payments across providers.

The methods and tasks that must be undertaken in order to develop a prospective payment system for the excluded facilities include:

Analysis of Delivery System

The collection of data and other information to provide an analysis of the delivery system of the excluded facilities must be undertaken. The use of resources required for patient care must be related to variables describing the nature of patients and providers. In contrast to general hospitals, the excluded facilities constitute highly differentiated systems of specialized services. Patients are frequently transferred from general hospitals to these facilities, which serve different purposes than the general hospitals. For example, patients may be admitted for rehabilitation services or may require repeated readmissions over a long period. Also, the excluded facilities are especially likely to treat patients with chronic or continuously-recurring illnesses. Thus, both patient populations and services provided may well vary considerably from those of general facilities.

Development of Classification System

The feasibility of a patient classification system that could be utilized as the basis for a case-based prospective payment for these facilities in ways that are

compatible with DRGs must be assessed. In addition to the medical diagnosis which is the basis of the DRG system, patient care requirements in these facilities may need to be described by functional status or social support characteristics--measures which presently are not included on Medicare data bases and are not fully developed conceptually. This is significant to the extent that diagnosis alone does not adequately explain variation in costs for patients treated in the excluded facilities. The definition and payment of outlier cases--unusually lengthy or costly cases--must also be reviewed for each of these four classes of hospitals. This could eventually be very important as an adjustment for imprecision in the measurement of case mix.

Design of Payment System

The additional hospital-specific characteristics of resource use in these excluded facilities must also be examined. These factors include urban or rural location, teaching status, proportion of public or poor patients, and other characteristics that modify the costliness of care for like cases treated in different facilities. These factors may be applied to moderate the incentives of a national payment system, for either a transitional or indefinite period.

Impact Assessment of Payment System

An impact assessment of the redistributional outcomes for included facilities and for other parts of the health care delivery system must be performed. This analysis should assess the consequences, in terms of both systematic and unsystematic risk,[3/] for the structure of these delivery systems and should also

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3/ The concepts of systematic and unsystematic risk receive extensive discussion in Chapter 2.

consider the additional administrative requirements (e.g., data bases) of the proposed payment system.

Legislative Recommendations

The legislative and regulatory recommendations for inclusion of the four specialty classes of hospitals under a prospective payment system must be developed. As the research proceeds and results and accomplishments are achieved and reported, options for including the four excluded classes of facilities under a prospective payment system will begin to take shape and can be deliberated. The detailed presentation of this research and related policy options for each of the classes of specialty hospitals forms the focus of the final section of this report.

Reviewing Research Studies on PPS for Excluded Hospitals

The following paradigm (Figure E-1) of the tasks in the development of a prospective payment system for excluded hospitals provides a useful structure for organizing the presentation of the research studies for each of the four specialty classes. The studies described in this report addressed a subset of the five tasks. The matrix drawn below presents an overview of those tasks that are completed (C), begun (B) or planned (P) for each of the four specialty classes of hospitals. As the matrix indicates, work is not now sufficiently advanced to support legislative recommendations for any of the excluded classes of hospitals.

FIGURE E-1

Excluded Hospitals Task Matrix

	Delivery System	Classification System	Payment System	Impact Assessment	Recommendations
Children's	C	C	B	B	P
Psychiatric	C	B	B	B	P
Rehabilitation	B	B	B	B	P
Long-Term	C	B	B	P	P

Children's Hospitals

Under a HCFA cooperative agreement awarded in July 1984, the National Association of Children's Hospitals and Related Institutions undertook a study to develop a revised DRG system for pediatric hospital care. The study was designed with three phases, which parallel the first, second and third tasks as they are delineated above.

Analysis of Delivery System

Phase I utilized a Commission on Professional and Hospital Activities data base of 500,000 pediatric records to describe the distribution of DRGs and resource use across four types of hospitals treating children--children's hospitals, university hospitals with primary-site pediatric residencies, community hospitals with pediatric residencies, and community hospitals without pediatric residencies.

This analysis indicates that:

- Children's hospitals, which received PPS exclusion, are very similar in case mix and resource use to university hospitals with primary pediatric residencies.

- Children's and university hospitals treat a broader mix of pediatric conditions than community hospitals.

- Children's and university hospitals treat virtually all of certain pediatric conditions--e.g., oncology, cardiac surgery, severely impaired neonates.

Development of Classification System

Phase II developed a revised pediatric classification system combining other case-mix measures with the currently legislated DRGs. These measures included the SysteMetrics disease-staging categories, a modified pediatric version of the disease-staging categories, the patient management categories of Blue Cross of Western Pennsylvania, the Horn severity of illness measure, and variables for age and birthweight.

This effort developed a revised classification system--pediatric DRGs (PDRGs) --which redefined certain DRGs and split other DRGs, resulting in 73 additional groups.

- The new PDRGs require only existing data elements on the standard billing form with one exception--that of additional birthweight categories for neonates under 29 days.

- Because the revised groups are frequently defined on the basis of the underlying chronic condition, the PDRGs characterize the most expensive pediatric cases reasonably well.

- The revised PDRGs are applicable to pediatric hospital care delivered in children's, university and community hospitals.

Design of Payment System

Phase III of the study is utilizing detailed cost-accounting data from a sample of 12 children's hospitals and a stratified sample of teaching hospitals in order to validate the revised pediatric classification system and to analyze a set of payment system issues--e.g., cross-subsidization of pediatric care in all hospitals except children's--required for implementation of a prospective payment system for pediatric hospitalization.

Implications/Recommendations for Policy

- The similarity of children's hospitals and university hospitals with primary pediatric residencies should be reflected in the development of a Medicare prospective payment system for pediatric care.

- HCFA is evaluating the utility of the revised PDRGs for Medicare payment of pediatric care. In particular, the effectiveness of the PDRGs in capturing the very high-cost cases, and so reducing the proportion of outlier cases, is being assessed.

- HCFA may explore modified hospital-specific adjustments (e.g., teaching status) for a pediatric PPS. In this context, the extent of cross-subsidization of pediatric care in nonchildren's hospitals should be evaluated.

- HCFA will want to perform some analysis of the redistributional impact of the PDRGs and modified hospital-specific adjustments for a proposed pediatric PPS. At this time, the methods for developing an appropriate data base and relative weights for the PDRGs can be determined. This is important not only for the Federal PPS, but for individual State Medicaid programs implementing payment reforms.

- HCFA will want to evaluate the feasibility and advisability of implementing the proposed Medicare PPS for pediatric care across all providers. Regulatory and legislative recommendations for a Medicare PPS for pediatric care can then be drafted.

Psychiatric Hospitals and Distinct-Part Units

In June 1984, the National Institute of Mental Health (NIMH) awarded a contract, which was jointly funded by NIMH and HCFA, for the development of a patient classification system on which a Medicare prospective payment system for psychiatric hospitals and distinct-part units could be based. In addition, substantial work on this problem has been conducted intramurally at NIMH and outside of the Federal government by trade and professional associations in the psychiatric field.

The findings of these studies include:

Analysis of Delivery System

- The psychiatric inpatient care system consists of different types of facilities performing different roles and exhibiting different costs per stay.

- Medicare coverage of psychiatric services is unlike its coverage of general health services.

- Medicare admissions constitute 10-15 percent of admissions to psychiatric facilities, and the majority of these are disabled beneficiaries who are probably disabled by psychiatric conditions.

Development of Classification System

- The current DRGs explain little of the variation in resource use.

- Efforts to identify additional patient characteristics (e.g., functional status or certified mental disability) that might better predict resource use for psychiatric facilities produced little improvement in the classification system.

- The intensive psychiatric care that is delivered in the excluded facilities might be considered a procedure and classified in a similar fashion to surgical procedures in the current DRGs.

Design of Payment System

- The outlier policy might be modified for psychiatric facilities to allow short-stay outliers and a larger proportion of long-stay outliers.

- Facilities might be paid differently according to the relative number of patients received in transfer and transferred out.

- Capitating psychiatric services may be an important approach for disabled Medicare beneficiaries.

Implications/Recommendations for Policy

- The Department's analysis of the evidence indicates that the current DRGs could result in reallocation of payments among psychiatric facilities.

- The high degree of differentiation in the psychiatric system suggests that some of the reallocation may not recognize differences in patient treatment requirements between facilities.

- The high volume of transfers and the low volume of Medicare patients suggest that if Medicare's payments are perceived to be inequitable, hospitals may have a financial incentive to discriminate against Medicare beneficiaries.

- The analysis of classification and payment options suggests several research strategies that should be tested with HCFA data becoming available over the next 2 years. This work has already been initiated by NIMH in collaboration with HCFA and is scheduled for completion in time for the annual Report to Congress for 1987 on the impact of PPS.

- The Department is working with other organizations (e.g., professional associations) in the psychiatric field that are conducting studies. This research from the private sector may also contribute to the development of a psychiatric PPS.

Rehabilitation Hospitals and Distinct-Part Units

In October 1984, the Medical College of Wisconsin (MCW) and the Rand Corporation began a joint effort to investigate the feasibility of a Medicare prospective payment system for rehabilitation hospitals and distinct-part units.

The MCW conducted a patient-record survey of rehabilitation facilities stratified by facility type and region. The abstracted records included standard discharge data, diagnostic condition defined by the HCFA list for exclusion of rehabilitation facilities, functional status and other impairment measures, billing data, and facility information gathered from a telephone interview. The Rand Corporation assisted in the design and analysis of the survey data, and obtained a 20 percent sample of the HCFA patient billing (PATBILL) file for FY 1984--the initial implementation year of PPS.

The Rand/MCW results include:

Analysis of Delivery System

- There are differences in average length of stay (LOS) and charges among the types of rehabilitation facilities, with rehabilitation hospitals generally exhibiting longer stays and lower per-diem charges than distinct-part units in hospitals.

- The vast majority (80-85 percent) of rehabilitation patients are admitted from acute-care hospitals and receive rehabilitation care that is integrally related to their care in the acute hospital.

- Three conditions--stroke, hip fractures and arthritis--account for approximately two-thirds of rehabilitation services for the Medicare elderly; yet these conditions represent vastly different charge structures.

Development of Classification System

- An analysis of total charges in rehabilitation facilities that includes only variables available on Medicare data bases--i.e., diagnostic condition, age, teaching status, and wage costs--explains very little of the variance.

- By contrast, an analysis including functional status measures not available on Medicare data bases explains 34% of the variance in total charges. The findings indicate that more inpaired patients on admission and patients with more gains at discharge incur higher charges.

Design of Payment System

- An analysis including patient status measures and adding facility characteristics of type, teaching status and region increases the explained variance to 39%.

Implications/Recommendations for Policy

- Diagnostic condition explains little, whereas functional status measures explain substantially more, of the variance in total charges for a rehabilitation stay. A nationally-accepted set of functional status measures has not yet been developed for application in a classification system for rehabilitation facilities.

- It may be preferable to develop a prospective pricing system for the excluded rehabilitation hospitals and distinct-part units in conjunction with the PPS for the acute-care hospitals from which the vast majority of their patients are received.

- In the broader context of policy reform, every effort should be made to move towards the Medicare objectives relating to capitation. Under

capitation, both acute and rehabilitation care would become part of a larger payment package.

- Until such time as capitation systems may be broadly applied, a PPS based on available HCFA data for rehabilitation facilities may be desirable. For example, HCFA is currently investigating the development of a transitional PPS for rehabilitation hospitals and distinct-part units that would set relative weights for the ten diagnostic conditions (e.g., stroke, hip fracture) listed for HCFA exclusion, modify the outlier definitions, and modify or add facility-specific adjustments (e.g., type of facility). Alternatives for developing a PPS based on functional status measures are being pursued.

- Accordingly, it is premature to advance specific regulatory and legislative recommendations for a Medicare PPS for rehabilitation facilities.

Long-Term Hospitals

Boston University, an affiliate of the Brandeis University Research Center, is studying those long-term hospitals that qualified for the HCFA exclusion from

PPS.[4/] This study is designed in two phases that parallel the first and fourth tasks of the paradigm outlined above:

Analysis of Delivery System

Phase I described the excluded long-term hospitals, augmenting the HCFA list of facilities with American Hospital Association (AHA) facility charcteristics data and with telephone interviews with a sample of administrators and nursing directors. The findings indicate that:

- These facilities excluded on the basis of a long average stay comprise a diverse set, including chronic-disease, rehabilitation, psychiatric, tuberculosis and respiratory disease, children's, general, and other specialty and nonspecialty hospitals.

- About one-third (33 that could be identified on both the HCFA and AHA lists) of these facilities fit the criteria of chronic-disease hospitals--i.e., a mission of heavy-burden, long-term hospital care for patients who are terminally ill, respirator-dependent or suffering from multiple debilitating conditions--and could not be characterized under another exclusion class (e.g., psychiatric).

- These 33 chronic-disease hospitals are distributed geographically so that 20 hospitals are located in Massachusetts and the remaining 13 hospitals

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[4/] The HCFA exclusion criterion for these facilities was based on an average LOS of greater than 25 days. See Chapter 1 for a detailed discussion of this matter.

on the Eastern Seaboard from Virginia to New England. They typically exhibit two historical antecedents--either a public institution for the treatment of a public health problem (e.g., tuberculosis) or a collection of skilled nursing facilities held under single ownership and including a few hospital-level beds.

Impact Analysis of Payment System

Phase II, which is scheduled for completion by the end of 1986, will analyze the HCFA PATBILL file for FY 1984 to evaluate the impact of Medicare reimbursement under TEFRA and under a simulated PPS for the excluded long-term hospitals. In one specification, the simulated payment will include both the acute and long-term stays for patients in these hospitals.

Implications/Recommendations for Policy

- The hospitals excluded on the basis of their average stays constitute a diverse set that closely resembles other hospitals, both included under (e.g., acute-care) and excluded from (e.g., psychiatric, rehabilitation and children's) the Medicare PPS.

- On the Eastern Seaboard, the separately-licensed chronic-disease hospitals treat patients that in other regions are treated in acute-care hospitals or skilled nursing facilities.

- Given the small number of long-term hospitals and the complexity of designing unique payment systems for these facilities, every effort should be made to move towards the broader Medicare reform objective of capitation. Under capitation, both acute and long-term hospital care would become part of a larger payment package.

- Until such time as capitation systems may be broadly applied, HCFA may want to consider including those long-term hospitals that (with the exception of their long stays) could be characterized as psychiatric or rehabilitation or children's whenever a Medicare PPS for the specialty class is proposed.

- Finally, HCFA remains committed to extending the PPS to excluded hospitals to the greatest extent possible and will continue to investigate alternative case mix methods and payment approaches towards accomplishing this end. As Medicare beneficiaries continue to join capitated systems, however, this policy direction becomes less important.

Organization of the Report

The remainder of this report is organized into three chapters. Chapter 1 focuses on characteristics and policy issues that cut across the four classes of excluded hospitals. It begins with a brief legislative history and rationale for exclusion under PPS, then discusses the process developed for initial exclusion of

these hospitals, and updates their current status. The chapter then presents available data on the different levels of Medicare program expenditures for these classes of hospitals, and concludes with a discussion of current Medicare payment policies—i.e., those legislated under TEFRA--for these facilities.

Chapter 2 introduces the methods and tasks for constructing and choosing the design features of a prospective payment system for excluded facilities. It includes a discussion of the design features of the present Medicare PPS, and an analysis of the unique characteristics and special issues that must be considered in a payment system for the excluded facilities.

- Chapter 3 provides a synopsis of the unique aspects of each hospital specialty class, reviews and analyzes relevant research studies, and draws implications for policy. Each section of this chapter includes a brief description and analysis of the particular excluded class of facilities. HCFA-funded research studies are described and assessed, and other available studies are briefly reviewed. The section concludes with a consideration of the specific directions for policy and further research studies.

Chapter 1

UNDERSTANDING EXCLUDED HOSPITALS: A DESCRIPTIVE OVERVIEW

Introduction

A total of 5,425 hospitals--or 81 percent of all hospitals in the United States -- were operating under the Prospective Payment System (PPS) as of the end of December 1985. At the same time, nearly 1,200 certified hospitals and over 1,300 certified distinct-part units of hospitals have applied for and received exclusions under PPS. Almost all of these excluded hospitals and units fall under one of four categories of excluded hospitals--children's, psychiatric, rehabilitation, and long-term.

Excluded hospitals are notable for some similarities and parallels, especially for payment purposes. A number of unique characteristics, however, caution against grouping them to any significant extent. There is evidence that each specialty class of these hospitals is part of a highly differentiated system, about which a substantial amount of information remains to be gathered.

This chapter focuses on characteristics and policy issues that cut across these four classes of excluded hospitals, that make them correspondingly similar yet different from each other. It begins with a brief legislative history and rationale for exclusion under PPS, then discusses the process developed for initial exclusion of these hospitals, and updates their current status through the administrative process of "reverification." The chapter next presents available data on the very different levels of Medicare program expenditures for these classes of hospitals, and concludes with a discussion of current Medicare payment policies and the

issues of attendant payment incentives for delivery of care that span all four of these specialty types.

Rationale and Status of Exclusion under PPS

Legislative History

The new Medicare PPS is an empirically based system; that is, payment for services is derived from past experience and historical costs. This design feature of the Diagnosis Related Groups (DRG) system was foremost among the reasons for congressional consideration of exclusion for certain groups of hospitals.

Indeed, the exclusion subsequently legislated for these four special classes of hospitals was based explicitly on the fact that the national data base used for creating the DRGs either did not include or underrepresented these groups. The HCFA-funded data base used by Fetter, Thompson, and colleagues to develop DRGs (Fetter et al., 1977, 1980, and 1982) was drawn from general acute care hospitals. No children's hospitals or freestanding psychiatric hospitals, for example, were included in the data base, so few of the patients typically treated in these types of hospitals were to be found in the sample. Furthermore, the Medicare, Michigan Medicaid, and Maryland all-payer cost data used to construct low volume DRG weights for the Medicare PPS did not include adequate data for these classes. For example, the Michigan and Maryland cost data included only one children's hospital. Thus, any distortions introduced during the development of DRGs by the omission or underrepresentation of data were not accounted for in the development of PPS.

The Department of Health and Human Services Report to Congress: Hospital Prospective Payment for Medicare (1982) recognized this deficiency, stating that the "467 DRGs were not designed to account for these types of treatment" found in the four special classes of hospitals, and noted that "including these hospitals will result in criticism... (and) their application to these hospitals would be inaccurate and unfair."

This latter phrase reflects a further and more implicit reason for exclusion of these hospitals--namely, that anecdotal data suggested that DRGs worked less well for these treatment classes than for other medical specialties. One problem was that the available evidence suggested that the resource needs of patients in these hospitals were not necessarily correlated with diagnoses. A second concern was that the mix of service intensities provided by these classes significantly differed from that of general medical/surgical hospitals. The legislative history report of the 1983 Amendments asserted that the "DRG system was developed for short-term acute care hospitals and as currently constructed does not adequately take into account special circumstances of diagnoses requiring long stays" (House Report No. 98-25, March 4, 1983, to accompany H.R. 1900, page 141).

The Process and Implementation of Exclusion Status

Following enactment of the Social Security Amendments in April of 1983, HCFA undertook a number of initiatives over the next several months to assure implementation of the new PPS by October 1 of that same year. Of particular importance was the publication of the rules and regulations. The interim final rule (and accompanying explanatory material) was published in the Federal Register (Vol. 48, No. 171, pp. 39752-39890) on September 1, 1983. Following a public

comment period and subsequent decisions about the issues raised by the comments received, HCFA published the final rule for the first year of PPS in the Federal Register (Vol. 49, No. 1, pp. 234-334) on January 3, 1984. Similar iterations to update and modify the rules and regulations for FY 1985 and FY 1986 occurred in July through August 1984 and June through August of 1985, with subsequent publications in the Federal Register. Together the initial legislative mandate and the published rules and regulations addressed several important program issues, including exclusion criteria for a diverse set of providers. These included psychiatric, rehabilitation, alcohol and drug units, as well as exempted types such as cancer treatment centers and rural referral centers[1/].

Exclusion criteria for children's and long-term hospitals were simply defined in the 1983 Amendments' legislative language. For psychiatric and rehabilitation hospitals and units, however, determination for exclusion from PPS has been based on specific regulatory criteria relating to the types of patients treated, services provided, staffing characteristics, and certification status. For psychiatric or rehabilitation freestanding hospitals, the facility has been required to meet the general conditions of participation for hospitals, as well as meeting the special conditions of participation within its particular specialty class. For distinct-part units within these two classes, exclusion has hinged upon association with a participating hospital, written admission criteria that apply to both Medicare and non-Medicare patients, separately identified admission and discharge records, policies under which necessary clinical information is transferred to the unit with

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1/ For a description and discussion of other excluded and exempted hospital types, such as cancer treatment centers and alcohol and drug units, see, for example, the Secretary's annual Report to Congress for 1984 on the impact of PPS.

each patient, compliance with applicable State licensure laws, utilization review standards for the type of care offered by the unit, separate beds that do not "commingle" with the hospital's other beds, servicing by the hospital's regular intermediary, financial structuring as a separate cost center, an accounting system that separately identifies and allocates its costs, maintenance of data to support the basis of allocation, and use of the same fiscal report period and cost apportionment method as the hospital (42 CFR 412.25(a)). Table 1-1 outlines the specific exclusion criteria for each of the four specialty types.

In addition, the actual process of defining an exclusion is the joint responsibility of several different organizational actors. HCFA regional offices are responsible for arranging surveys to verify compliance with the exclusion criteria, and for deciding, based on the survey results, whether specific hospitals or units will be excluded. Intermediaries generally will verify compliance with all criteria that are related to accounting (e.g., the ability to maintain separate cost centers for distinct-part units) or are verifiable from cost reporting data (e.g., length-of-stay for excluded hospitals). In addition, intermediaries generally will verify compliance with the 75 percent rehabilitation caseload requirement for rehabilitation hospitals and units.[2] State survey agencies generally will verify compliance with all other requirements, such as those relating to the qualifications of the director of rehabilitation.[3]

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[2] See Table 1-1.

[3] In some regions, differences in workload may require a division of responsibilities different from that described above. For example, compliance with the 75 percent requirement may be determined by the State agency rather than the intermediary. In these cases, the regional offices will decide which entity verifies each exclusion criterion.

TABLE 1-1

Exclusion Criteria

Children's	• inpatients predominantly individuals under 18 years of age (based on hospital's most recently filed cost report) • provider agreement with Medicare • meets Medicare's definition of a hospital
Long-Term	• average inpatient length of stay of more than 25 days (Section 1886(d)(1)(B)(iv)) • provider agreement with Medicare (see Health Insurance Manual 15, Section 2803)
Rehabilitation* (See 42 CFR 412.23(b), 412.29 and 412.30)	• have a provider agreement with Medicare • be primarily engaged in furnishing intensive rehabilitative services during the hospital's most recent cost reporting period for an inpatient population of whom at least 75 percent required treatment for one or more of 10 specified conditions (e.g., stroke, spinal cord injury).** • have a director of rehabilitation who is a licensed doctor of Medicine or osteopathy, and has had at least 2 years experience in treating inpatients requiring rehabilitation services. • have in effect a preadmission screening procedure • use a multidisciplinary team approach in the rehabilitation of each inpatient

	• ensure that patients receive close medical supervision and furnish rehabilitation nursing, physical therapy and occupational therapy, plus, other special services such as speech therapy and prosthetic services. • have a plan of treatment established, reviewed, and revised as needed by a physician in consultation with other professional personnel
Psychiatric* (See 42 CFR 412.23(a), and 412.27)	• provider agreement with Medicare • treating only patients with a principal admission diagnosis contained within the 1983 American Psychiatric Association's Diagnostic and Statistical Manual (DSM-III) • directed by a board-certified (or eligible) psychiatrist • furnishing psychological and social work services • supervised by a registered nurse qualified in psychiatric nursing • providing an individualized treatment patient plan developed by a multidisciplinary team consisting of at least a physician, a psychologist, and a psychiatric nurse

* In addition to meeting the same requirements as acute care hospitals, rehabilitation and psychiatric distinct-part units must satisfy a few special requirements. They must apply written admission criteria uniformly to Medicare and non-Medicare patients, in order to discourage patient shifting. The units must be separate cost entities, with separate medical and financial records. Distinct-part units' beds may not be used for acute care patients. (See 42 CFR 412.27 and 42 CFR 412.29.)

** A hospital may also provide a written certification that the inpatient population it intends to serve over the next 12 months meets these requirements.

In general, each hospital or distinct-part unit across all four specialty types is subject to or excluded from PPS according to its status at the beginning of each cost-reporting period. This status continues throughout the period, unless the hospital is excluded because of its participation in an approved demonstration project, or a statewide waiver is granted. This approach was taken to avoid administrative difficulties that could arise if a hospital or unit were paid under different systems during a single cost reporting period. In addition, once exclusion has been granted, there is an annual reevaluation or "reverification" to determine each facility's status for the next cost-reporting period.

Current Exclusions

Statistics compiled through June 1985 broadly indicate the extent to which providers across these four specialty treatment groups (as well as others) are responding to Medicare's new payment system. Tables 1-2 through 1-6 list the number of hospitals and units of each type that have applied, been approved and/or denied, and are excluded from the PPS.

The aggregate numbers of excluded hospitals and units are further shown in Table 1-6 for March and September of 1984, as well as March, June and December of 1985. As this table points out, the numbers of some types of excluded hospitals (such as psychiatric hospitals) have remained virtually unchanged since March 1984, while other types (e.g., rehabilitation hospitals) and excluded units (e.g., psychiatric) have greatly increased in number. Psychiatric freestanding hospitals have shown little change with time because historic participation in Medicare allowed automatic exclusion under the new system. At the same time, extremely large increases in numbers of exclusions reflect, in part, 5-6 month lag times that

Table 1-2

PPS Exclusions - Children's Hospitals

	FY 1984		FY 1985	
(Cumulative totals as of)	March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Initial Requests	44	48	53	53
Approvals	38	47	49	49
Pending	5	-	3	3
Denied	1	1	1	1
-Staffing	-	-	-	-
-Records	-	-	-	-
-Other	1	1	1	1[1]
Reverification	N/A	N/A	10	35
Approvals			10	35
Denied			-	-
-Staffing				
-Records				
-Other				
Total Number of Exclusions	38	47	49	49

N/A = Not Applicable

[1] Age criterion was not met in 1 hospital.

Source: HCFA/ Health Standards and Quality Bureau Reports of Exclusion Activity

Table 1-3

PPS Exclusions - Psychiatric Hospitals and Units

(Cumulative totals as of)	FY 1984		FY 1985	
	March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Hospitals[1]	429	439	439	464[2]
Units				
Initial Requests	803	966	1091	1091
Approvals	380	722	768	798
Pending	282	19	82	50
Denied	141	225	241	241
-Staffing	29	40	44	44
-Records	19	16	20	20
-Not a Distinct Part	12	70	75	75
-Other	81	99	102	102[3]
Reverification	N/A	N/A	321	521
Approvals			290	485
Denied			31	36
-Staffing			25	25
-Records			1	1
-Not a Distinct Part			4	4
-Other			1	6[4]
Total Number of Unit Exclusions	380	722	737	762

N/A = Not Applicable

[1] All freestanding psychiatric hospitals were automatically excluded from PPS, if Medicare certification requirements were met.

[2] Includes 27 initial approvals and 2 reverification denials since March 31, 1985.

[3] Includes instances of commingling of beds (1), no license (5), no utilization review standards (5), application received after deadline had expired for cost reporting period (3), facility no longer operational (2), admissions not limited to patients whose primary reason for admission was active psychiatric treatment (3), inadequate allocation of cost reporting (1). The majority of facilities falling into this category were in violation of more than one exclusion criterion.

[4] Includes instance of facility closing (1).

Source: HCFA/Health Standards and Quality Bureau Reports of Exclusion Activity

Table 1-4

PPS Exclusions - Rehabilitation Hospitals and Units

(Cumulative totals as of)	FY 1984		FY 1985	
	March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Hospitals				
Initial Requests	51	50[1]	69	74
Approvals	35	49	54	63
Pending	15	-	19	10
Denied	1	1	1	1
-Staffing	-	-	-	-
-Records	-	-	-	-
-Rehab Director	-	-	-	-
-75% Rehab Case Mix	1	1	1	1
-Other	-	-	-	-
Reverification	N/A	N/A	14	40
Approvals			14	40
Denied			-	-
-Staffing				
-Rehab Director				
-75% Rehab Case Mix				
-Other				
Total Number of Hospital Exclusions	35	49	54	63

Table 1-4 (continued)

	FY 1984		FY 1985	
	March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Units				
Initial Request	335	417	496	496
Approvals	166	308	352	376
Pending	120	13	38	14
Denied	49	96	106	106
-Staffing	-	2	2	2
-Records	-	3	3	3
-Rehab Director	19	15	15	15
-75% Rehab Case Mix	6	11	15	15
-Not a Distinct Part	12	29	31	31
-Other	12	36	40	40[2]
Reverification	N/A	N/A	113	223
Approvals			112	220
Denied			1	3
-Staffing			-	-
-Records			-	-
-Rehab Director			-	-
-75% Rehab Case Mix			1	1
-Not a Distinct Part			-	-
-Other			-	2
Total Number of Unit Exclusions	166	308	351	373

N/A = Not Applicable

[1]One application withdrawn.
[2]Includes instances of not licensed (7), not operational (3), no orthopedic/prosthetic service (1), skilled nursing facility unit (1).

Source: HCFA/Health Standards Quality Bureau Reports of Exclusion Activity

Table 1-5

PPS Exclusions - Long-Term Hospitals

	FY 1984		FY 1985	
(Cumulative totals as of)	March 31, 1984	September 30, 1984	March 31, 1985	June 30, 1985
Initial Requests	98	103	108	109
Approvals	68	84	84	90
Pending	18	-	5	-
Denied	12	19	19	19
-Staffing	-	-	-	-
-Records	-	-	-	-
-Other	12	19	19	19[1]
Reverification	N/A	N/A	50	70
Approvals			49	68
Denied			1	2
-Staffing			-	-
-Records			-	-
-Other			1	2[2]
Total Number of Exclusions	68	84	83	88

N/A = Not Applicable

[1] Length-of-stay criterion was not met in 18 hospitals, 1 facility did not qualify as a hospital under Medicare certification requirements.
[2] Withdrawal of application by 2 hospitals.

Source: HCFA/Health Standards and Quality Bureau Reports of Exclusion Activity

Table 1-6

Excluded Hospitals and Units under PPS

(cumulative totals as of December 31, 1985)

	FY 1984		FY 1985		FY 1986
	March 1984	September 1984	March 1985	June 1985	December 1985
Specialty Type					
Children's	38	47	49	49	56
Psychiatric					
Hospitals	429	439	448	464	491
Units	380	722	737	762	831
Rehabilitation					
Hospitals	35	49	54	63	72
Units	166	308	351	373	423
Long-Term	68	84	83	88	92

Note: 1984 figures do not include hospitals and units in the waivered States. The numbers for 1985 do include data for hospitals and units in waivered States that meet the criteria for excluded hospitals and excluded units under PPS. These data are phased-in according to the fiscal year start dates of the facilities.

Source: HCFA/Health Standards Quality Bureau Reports of Exclusion Activity

have been encountered in the application and certification process, especially during the initial year. In other instances, final rules have been modified to allow for a greater number of exclusions.

There are two further points about these numbers that need to be considered in research, analysis and policy development efforts. For one, not all hospitals and units that might generically fall into these four specialty classes necessarily meet HCFA criteria for eligibility. For example, only 831 of more than 1,200 general psychiatric units of short-term hospitals have been granted an exclusion.[4/]

A second point is that exclusion category status may not fully reveal the institutional characteristics or patient population served. For example, the exclusion process does not allow identification of a subset of patients that overlap exclusion categories (e.g., children's rehabilitation and children's psychiatric cases). The approximately 30 children's psychiatric hospitals nationally could be included among the list of children's hospitals or the list of the 464 exempted psychiatric hospitals. There is also some anecdotal evidence that pediatric units in teaching hospitals have "reconstituted" as separate children's hospitals, while applying and receiving subsequent exclusions under PPS.

Another example is the long-term hospitals, several of which primarily treat patient populations very similar to those in rehabilitation facilities, but which chose not to meet regulatory standards for exclusion in the rehabilitation category.

4/Some hospitals/units intentionally do not comply with one or more exclusion requirements because of what they perceive to be favorable payment incentives presented by the PPS.

Correspondingly, there is at least circumstantial evidence, from a cross-check of public and private sector hospital lists, that the list of excluded rehabilitation facilities contains hospitals and units that could qualify as long-term. An examination of American Burn Association provider lists also further reveals that the excluded rehabilitation facility list may contain at least five or six freestanding burn centers, as well as five or six burn center distinct-part units that are part of larger institutions.

Available data on hospitals and units applying for and receiving exclusions under PPS rules and regulations warrant a certain level of scrutiny in subsequent chapters of this report. For example, what have been the incentives--if any--present, why or why aren't certain institutions "coming in," and what is the patient mix at these institutions?

Descriptive Statistics

Available information on the number of discharges and total charges for Medicare beneficiaries in the excluded facilities by specialty class is presented in Tables 1-7 through 1-11. Because of the specialized nature of care delivered by excluded hospitals, and because of the Medicare benefit structure that is generally confined to the elderly (65 years and older) and to a limited number of

inpatient hospital days,[5/] Medicare dollars expended for excluded hospital services are relatively small compared to other types of health services under Medicare, especially medical and surgical procedures in acute care delivery settings. For example, a relatively small part of overall Medicare payments are for psychiatric services. In FY 1981, about 2.4 percent of Medicare interim payments, or $995 million of the approximately $41.3 billion in total hospital reimbursements, were for psychiatric services.

5/ Medicare was designed by Congress (and continues to largely function) as an insurance program for payment of medical bills during periods of acute illness. Briefly, coverage policies for health care expenses incurred by beneficiaries eligible under the Medicare program are divided into two parts: hospital insurance (Part A) and medical insurance (Part B). Development of a prospective payment system for excluded hospitals will impact almost entirely on coverage policies under Part A. Generally, when all program requirements are met, Medicare Part A will help pay for medically necessary in-hospital care. Following a hospital stay, coverage extends to medically necessary inpatient care in a skilled nursing facility. In addition, Part A covers all services customarily furnished in these settings, with the exception of such things as private duty nursing and "convenience items" (e.g., telephones). Part A also pays the full cost of medically necessary home health care.

Medicare hospital (Part A) benefits are paid on the basis of "benefit periods." A benefit period begins on the first day of coverage for hospital services and ends when the beneficiary has been out of a hospital or other facility primarily providing skilled nursing or rehabilitation services for 60 consecutive days. Following this 60-day period, a new benefit period begins should a beneficiary re-enter a hospital. Over a lifetime, the number of benefit periods is unlimited.

Within these individual benefit periods, Part A pays for all covered services for the first 60 days of inpatient hospital care, except for an up-front deductible (currently set at $492). For the next 30 days, Part A pays for all covered services except for a daily copayment amount ($123 per day). In addition, every person enrolled in Part A also has a 60-day reserve for inpatient hospital care which can be drawn from if more than 90 days are needed in a benefit period. As reserve days are used, Part A pays for all covered services, except for a daily copayment amount ($246 a day). Once used, reserve days are not renewable. A single but not insignificant variation to this benefit structure, though, concerns mental health care in a freestanding psychiatric hospital, for which there are the usual deductible and copayment levels, but with a 190-day only lifetime limit. (This is discussed at greater length in Chapter 3.)

The differences in levels of expenditures and payer mix could have pronounced implications for prospective payment policies relating to these excluded classes of hospitals and units. For rehabilitation facilities, for example, because Medicare is the single largest payer of rehabilitative care (Kane et al., 1985), changes in Medicare payment policy will have a substantial impact upon their provision of care. For psychiatric, children's, and long-term facilities, Medicare payments constitute a considerably lower percentage of a provider's revenues. Only about 3 percent of expenditures for children's hospitalization, for example, come from the Medicare program. To the extent that Medicare constitutes a small portion of revenue for some facilities, possible concerns arise that inadequate payment levels could affect beneficiary access to those institutions, the quality of care provided upon admission, and the timing of the decision for discharge (see Chapter 3).

Sources and levels of public funding become expanded when coverage under Medicaid is considered. Children's hospitalization is the most dramatic example in which Medicaid patients can sometimes account for a majority of a facility's total revenues. Almost half (45.8 percent) of the expenditures on children's hospitalizations come from public sources, the most important of which is the Medicaid program. For chronic care patients, Medicaid is also generally the public program that shoulders any payment burden. To the extent that States adopt prospective payment approaches under their Medicaid programs, Federal PPS policies could serve as precedents for excluded hospitals and as such take on additional importance.

Table 1-7

Medicare Expenditures in Excluded Children's Hospitals
and for Pediatric Hospitalizations

	Number of Discharges	Total Charges (millions)
Children's Hospitals		
0-17 years	630	$ 5.3
18-25 years	265	1.8
26-64 years	145	1.1
65 years	350	4.2
Total	1,390	$12.4
Pediatric Hospitalizations		
(0-17 years)	630	$ 5.3
Excluded Hospitals	2,860	25.0
PPS Hospitals		
Total	3,490	$30.3

Source: HCFA files for CY 1984.

Table 1-8

Medicare Expenditures in Excluded Psychiatric Facilities and for Major Diagnostic Categories 19 and 20 in Non-Excluded Facilities

	Number of Discharges	Total Charges (millions)
Excluded Psychiatric Facilities*		
Hospitals	59,090	$ 380.5
Units	57,210	306.0
Total	116,300	$ 686.5
MDC 19 in Non-Excluded Facilities	176,765	721.0
MDC 20 in Non-Excluded Facilities	41,750	136.2
Grand Total	334,815	$1,543.7

*The mean charge in psychiatric hospitals is $6,438 and the mean length of stay 52.1 days; in units, the means are $5,348 and 16.9 days, respectively. The total covered charges in hospitals is $296.2 million and in units $302.8 million.

Source: HCFA files for CY 1984.

Table 1-9

Medicare Expenditures in Excluded Rehabilitation Facilities and for DRG 462 in Non-Excluded Facilities

	Number of Discharges	Total Charges
Excluded Rehabilitation Facilities*		
Hospital	11,040**	$ 118.7**
Units	27,545	275.8
Total	38,585**	$ 394.5**
DRG 462 in Non-Excluded Facilities	2,995	28.8
Grand Total	41,580	$ 423.3

*The mean charge in rehabilitation hospitals is $10,753 and mean length of stay is 30.1 days; in units, the means are $10,013 and 22.1 days, respectively.

**These figures are substantially understated for rehabilitation hospitals; Table E-2 presents more accurate figures.

Source: HCFA files for CY 1984.

Table 1-10

Medicare Expenditures in Facilities Excluded for Mean Stays of 25+ Days

	Number of Discharges	Total Charges
Long-Term Hospitals*	20,255	$215.3

*The mean charge in these facilities is $10,630 and the mean length of stay is 35.8 days.

Source: HCFA files for CY 1984.

Table 1-11

Medicare Expenditures in Facilities Excluded for Mean Stays of 25+ Days

	Number of Discharges	Total Charges	Covered Charges
Long-Term Hospitals*	22,067	224.7	167.0
Long-Term Hospitals not in Maryland, New Jersey, or New York**	13,647	134.1	102.3
Chronic-Disease Hospitals	2,825	45.8	7.4

*The mean charge for all excluded long-term facilities is $10,183; for facilities not in the waivered States, is $9,824; and for chronic-disease hospitals is $16,228. For this last group, the mean covered charge is $2,616. The mean stay for all facilities is 37.5 days; for facilities not in waivered States, 36.3 days; and for chronic-disease hospitals is 96.6 days.

**These three States were exempted from PPS under State waivers in FY 1984.

Source: Boston University tabulations from HCFA files for FY 1984.

In short, any consideration of implementing PPS for excluded hospitals could be a function, in part, of the absolute level of Medicare dollars involved, the relative rate of change in those payments in recent years, and the relative impact of PPS and other factors on Medicare payments to these facilities in the future. Medicaid utilization must also be included in the analysis of the Federal budget component, because HCFA is responsible for administering the Federal portion of that program, and because Medicaid programs may adopt the Medicare payment system.

Medicare's Current Payment Policies for Excluded Facilities: TEFRA Limits

An essential component to understanding excluded hospitals involves the current Medicare payment policies for these specialty classes. To an important degree, the current approaches and methods of payment influence behavior in the delivery of care by those facilities. Further, any consideration of a new payment system must be carried out in the context of how incentives might change in the transition from the current system.

From its inception, the Medicare program was based on a retrospective cost-based reimbursement system. This payment method for institutional providers was modeled after prevailing private insurance practices, and involved reimbursement for any reasonable costs incurred in the provision of covered care to Medicare patients. With the enactment of the Social Security Amendments of 1983, a large percentage of hospitals began to receive payment for individual cases according to the DRG-based price established prospectively. Specialty classes of hospitals and units excluded from PPS (or from a waivered-State alternative inpatient hospital payment system) continued to be reimbursed by Medicare on the basis of

reasonable and allowable costs--although with some important modifications. These modifications stemmed from a number of provisions that have been introduced into the retrospective system over the years to contain costs.

Medicare's method of cost reimbursement was most significantly altered by the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982 (P.L. 97-248). Prior to TEFRA, hospitals were reimbursed by Medicare according to a system of limits for daily routine occupancy costs, plus the reasonable costs incurred for daily special care (e.g., intensive coronary care) and ancillary care (e.g., respiratory therapy). Under TEFRA--which took effect at the start of each individual hospital's fiscal year beginning on or after October 1, 1982--reimbursement limits were extended to total operating costs per discharge. This legislation effectively shifted established Medicare reimbursement limits from per-diem costs to per-case costs.

Upper limits for individual inpatient operating costs per case were established by Section 1886(a) of the Act, using an initial averaging of costs across the aggregate of cases treated in similar hospitals. "Similarity" of provider type was defined as belonging to one of seven Medicare-designated urban or rural bed-size classes. Medicare case mix was also taken into account. An early form of DRGs, utilizing Medicare stay files to develop relative cost weights, was used to create a case mix index (CMI) for each hospital. This CMI collectively weighted each hospital's average costs per discharge to account for differences in patient populations. Cost adjustments were made for wage-index differences nationally, and adjustments to limits were made for indirect teaching. Upper limits were then set by the legislation at 120 percent of the average for FY 1983, 115 percent for FY 1984, and 110 percent for FY 1985 and each fiscal year thereafter. These

limits were calculated for each of the seven Medicare (TEFRA) hospital classes. Only sole community hospitals, new (i.e., under 3 years) providers, health maintenance organizations (HMOs), and rural hospitals with fewer than 50 beds were exempted from these limits. The enactment of the 1983 Social Security Amendments (P.L. 98-21) one year later, however, eliminated this section for cost-reporting periods beginning on or after October 1, 1983.

In addition to including a limit on all inpatient operating costs, the TEFRA legislation also established a "target" rate of increase (applied at the case level) that would result in reduced reimbursement if exceeded by a hospital, or an incentive payment if a hospital did not exceed its limit. Under 1886 (b) of the law, each hospital's growth in inpatient operating costs per case was limited during the first year by an amount reflecting the percentage increase in the hospital wage and price index plus a technology factor of one percentage point. For the second and third years, the TEFRA target rate was to have been the target of the previous year, increased by the hospital market basket plus 1 percent.

Under the 1983 Amendments, changes to the TEFRA target rate percentages as applied to the excluded hospitals were required to be established prospectively for cost reporting periods beginning on or after October 1, 1983. Subsequently, the Deficit Reduction Act (DEFRA) of 1984 (P.L. 98-369) further modified the target rate by reducing the 1 percent adjustment factor to 0.25 percentage points for hospital reporting periods beginning on or after October 1, 1984. Only new hospitals and risk-basis HMOs were exempted from these target rate controls,

though the TEFRA legislation provided that limits could be adjusted upward for providers under specified circumstances.6/

In other words, the initial TEFRA legislation established for each hospital a "target" inpatient operating cost per discharge--conceptually, a single DRG case-mix adjusted limit amount applicable to all cases. During the first year of its implementation, Section 1886(a) of the Act had initiated a national set of limits that no hospital could exceed (unless specifically exempted or in some form excepted through circumstance). Correspondingly, a second section of the bill, Section 1886(b), established a cost growth limit for future years. Each hospital's "target" became the lesser of the two limits. Since October 1, 1983, though, only the rate of growth ceiling provision has continued, and this was subsequently modified and made more restrictive by DEFRA.7/

Importantly, the TEFRA legislation also provided for an incentive payment to hospitals that achieved operating costs less than or equal to their target amounts. The incentive payment would be the lesser of one-half the difference between actual and target costs per discharge, or five percent of the target amount. This incentive has continued, and is currently applied to excluded hospitals.

6/These special exceptions included "atypical services," "extraordinary circumstances," fluctuating populations, medical and paramedical education, more intensive routine care (during hospital reporting periods beginning before October, 1, 1982), essential community hospital services, unusual labor costs, and changes in case-mix (for cost reporting periods beginning before October 1, 1983).

7/Relevant prospective rate of growth ceilings are published quarterly in the Federal Register.

Finally, for hospitals whose operating costs per discharge exceeded their targets, TEFRA provided for reimbursement of up to 25 percent of the allowable operating costs in excess of the target amount. This provision applied to cost reporting periods beginning before October 1, 1984; since then, the target has been the maximum amount--a further efficiency of the initial TEFRA limit approach.

The implication is that the present Medicare method for reimbursing inpatient hospital care to beneficiaries in excluded facilities can be termed a form of reasonable operating costs per discharge. With the initial formulation of TEFRA regulations, psychiatric facilities could often be determined to exemplify facilities providing "atypical services." The TEFRA legislation had no special provisions for children's, rehabilitation, or long-term facilities. At present, none of the excluded facilities receive special upward adjustments, but rather they are subject to the Medicare operating cost per discharge target amount rules.

The transition from per-diem occupancy costs to total operating care cost limits, coupled with the incentive payment provided to hospitals that contained costs under the prospectively-determined limit, generated much greater incentives for providers to be efficient than did former Medicare limits on routine daily occupancy costs. And while the TEFRA limits have meant that excluded facilities do not participate in PPS, they still arguably function under a prospective limit-based system that utilizes economic incentives similar to those of PPS.

But while TEFRA limits provide incentives similar to PPS for per case efficiency and similar limits on inflation of prices, the TEFRA incentives for

hospitals to curtail costs are weaker than those of PPS because TEFRA offers less reward for such behavior. Furthermore, while TEFRA and PPS payment policies share several system design features, there are also several significant structural differences that distinguish the target amount per-case payment approach from Medicare's established PPS rates (or prices) per case in acute-care settings (see Table 1-13).[8/] First, the TEFRA target amounts are largely "hospital-specific," whereas PPS utilizes a blend of hospital-specific and Federal and regional standardized payment amount factors. Second, the maximum incentive payment for hospitals that hold costs within TEFRA targets is five percent of the target operating costs per case. PPS, on the other hand, places no ceiling on any limits between prospective payments and costs. Third, changes in case mix are not taken into account after the TEFRA base year, while PPS automatically adjusts for case mix changes as they occur. Fourth, TEFRA has no special provisions concerning exceptionally lengthy or costly cases, while PPS has an explicit additional payment method for such cases.

The overall degree of effectiveness of TEFRA incentives will depend, to some degree, on the proportions of payment by Medicare to excluded classes of hospitals and units. Each of the design distinctions, however, works to compromise incentives for improving efficiency in the delivery of needed health care, in comparison with a prospective payment system such as PPS. As a result, excluded facilities can be expected to have, for example, smaller length-of-stay reductions and perhaps smaller reductions in special and ancillary care than are found in facilities under PPS. Operating surpluses will be correspondingly less than those

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[8/] Also, see Chapter 2 for a discussion of the design features of the Medicare PPS.

being generated by providers under PPS. Similarly, CMI ratios will be somewhat equivalent to (or even less than) those of their base year--in contrast to recent CMI growth under PPS. A very clear implication, then, is that, while TEFRA limits will restrain the rate of growth in expenditures by excluded hospitals, a PPS system could encourage more efficient behavior and promote better access for Medicare beneficiaries.

Discussion

This chapter has provided background and discussion on a number of topics that characterize and define excluded hospitals. These include the legislative history, the exclusion and reverification process, and levels and proportions of expenditures under the current TEFRA-based reimbursement system.

Perhaps most importantly, this chapter, in its discussion of payment under TEFRA, also establishes that TEFRA currently limits per-case expenditures and the annual rate of increase in costs for care in these facilities. Likewise, TEFRA incorporates payment system design features and behavioral incentives for the efficient delivery of care that are similar to PPS for acute-care hospitals.

Still, this current system of limits must be perceived as beneficial only in the context of transition. As a permanent system, it is deficient in several important ways. Opting for a prospective payment system based on prices per case rather than limits might offer a number of advantages for both HCFA and excluded providers.

Table 1-13

Medicare Payment System Design Features: TEFRA and PPS

	TEFRA Operating Cost Per Case Targets	DRG Prospective Payment (PPS)
Differences		
Determination of Costs Limits	Hospital Specific (Generally)	Approaching National Averaging
Case-Mix Payment Adjustment	Base Year Only	Ongoing/Automatic
Medicare Operating Surplus to Provider	Limited to 5% of Target Amounts	Unconstrained/No Limit
Malpractice Costs	Excluded from Limit	Included in Price
Outlier Cases	Included in Averages	Additional Payments Provided

Similarities

- Discharge is unit of reimbursement/payment
- Special care and ancillaries, as well as routine occupancy costs, included in the limits/standards prices
- Payments adjusted by "pass-through" for direct costs of medical education, capital costs, kidney acquisition, outpatient care, nonphysician anesthetists
- Standardization for wage index differences
- Adjustments formula for indirect costs associated with conducting general medical education
- Hospitals may receive Medicare payments in excess of actual costs
- Target amounts/prices known before the year to which applied

* Initially, based on seven TEFRA groups defined by characteristics such as bed size and urban/rural location, and rate of increase applied to hospitals over costs. Currently, only rate of increase provisions apply.

The first and most obvious advantage would be longer-run cost control and efficiency. As already discussed, TEFRA incorporates incentives for efficiency that are probably much weaker than those under PPS, because hospitals cannot currently share in surplus revenues. Hospitals could--at least theoretically--gain more under PPS, as all savings (surplus) accrue to the individual hospital with this payment approach. Moreover, efficient hospitals would be rewarded and poorly managed hospitals penalized, unlike the present situation. Likewise, HCFA could become a more prudent buyer by moving excluded facilities to some type of PPS, since in the long run savings resulting from increased efficiencies would be realized. Such savings will probably not accrue under TEFRA.

A second advantage would involve greater flexibility. As with acute care services, facilities across these four specialty types could realize greater flexibility in spending a fixed payment rate such as is provided under PPS. The ability to extend coverage for certain services, or substitute more cost-effective approaches (e.g., outpatient services in psychiatric care), could be welcomed by providers. Another flexibility issue relates to the TEFRA regulations under which excluded facilities will continue to operate--those regulations provide almost no opportunity for historically under-funded facilities to achieve a more equitable reimbursement under Medicare. Certainty of revenues could also promote more rational planning and cost-effective delivery of excluded services.

A third advantage would involve program compatibility and integrity. Under TEFRA, some variation in payment according to institution type and geographic location is maintained, though individual hospitals do have incentives to become more efficient.

Similarly, as long as these excluded service classes have alternative ways to be covered, hospitals and distinct-part units will have some leeway to shift between (or among) them, and can be expected to select the status that brings the best payment. As previously noted, this would already seem to be occurring in regard to a variety of psychiatric units in general hospitals, which were able to "choose" whether to meet the requirements for exclusion. Likewise, there is some evidence of "movement" by facilities treating pediatric cases and rehabilitation patients. There are also features of the regulations (the application process and absence of limitations) that permit this behavior to continue.

Of course, to move from a TEFRA-based payment system will not necessarily be prudent unless a technically developed and feasible prospective payment system with which to replace it is available and able to be implemented. Thinking about the development of such a system is the subject of the next chapter.

Chapter 2

DEVELOPING A PROSPECTIVE PAYMENT SYSTEM FOR EXCLUDED HOSPITALS

Introduction

The development and implementation of PPS in the early 1980's for acute-care hospitals was intended to create financial incentives that encouraged the efficient use of resources while maintaining high-quality inpatient care. Within the context of this overall objective, the Department, at the outset, established several additional goals for the reform of the Medicare payment mechanism, reflecting 16 years of experience with cost-based reimbursement and 10 years of extensive experimentation with various payment alternatives. These goals were as follows:

- The system should continue to ensure beneficiary access to quality care;
- It should be easy to administer;
- It should be capable of being implemented quickly;
- It should ensure predictability of government outlays;
- It should help hospitals attain predictability of their Medicare revenues;
- It should establish the Federal government as a prudent buyer of services;
- It should provide incentives for hospital management, flexibility, innovation, planning, and control; and
- It should reduce the hospital cost reporting burden.

These goals and objectives are similary important in thinking about the design and implementation of a new payment system for excluded facilities.

Any critical deliberation of the relative merits of new legislative and regulatory options necessitates a framework or set of values for deciding what constitutes a satisfactory system. Logically, these goals and objectives become the very criteria for evaluating the effect of such a payment system. Because any payment system will have a financial impact on, not only the payer, but the patients and the institutions receiving payment, the goals and concerns of each of these groups must become considerations for evaluating the effect of a payment system.

The payer, the Health Care Financing Administration (HCFA), on behalf of taxpayers and patients, is concerned that a PPS for excluded facilities promote a cost-effective system of inpatient care. HCFA relies on the incentives within a PPS to attain its goals. Cost effectiveness of the health care system that promotes an appropriate level of quality care thus becomes a first important criterion by which to judge payment reform.

Hospitals, the institutions receiving payments, are concerned that the level of payment be based on patient need and be adequate to provide quality care as they see it, and that the payment system not capriciously redistribute resources among institutions. This would unfairly damage the financial health of some institutions and likely lead to discrimination against providing care for some patients. A second important criterion is thus the fairness of the system in structuring payment to hospitals.

In light of these system goals, objectives, and criteria, the several parameters that would determine how the system functions must be specified. The methods and tasks for constructing and choosing the design features of a new payment

system for excluded facilities is the subject of this chapter. It includes a discussion of the design features of the present Medicare PPS, and an analysis of the unique issues that must be considered in a payment system for excluded facilities.

The clear direction of research over the last 3 years pertaining to excluded facilities has been the design and development of a case-based system of prospective payment for those hospitals and distinct-part units. To fully realize such an objective, there are at least four fundamental tasks that must be addressed and undertaken. These include:

- The collection of data and other information to provide an analysis of the existing service delivery system of excluded facilities. The use of resources (dollars spent) must be understood in terms of its relationship to variables describing the nature of patients, providers and resources. The pattern by which these resources are consumed over the course of an episode of care must further be understood.

- The feasibility of a classification system for patients served by these excluded facilities that could be utilized as the basis for a case-based prospective payment in ways that are similar and compatible to DRGs under PPS. Case-mix, defined by the DRG system, is used as the measure of the hospital's product for purposes of payment under PPS. A classification system is essential to operating a prospective payment system based on a per-case payment, since the classification of the case determines the payment. The definition of any outlier cases--

unusually lengthy or costly cases--must also be considered. This is particularly important if the classification scheme does not completely reflect differences in treatment requirements across patients.

- Alternatively, carefully described payment systems for excluded facilities must be developed, as classification systems can only be evaluated in the context of a payment system. Specific features that must be examined include not only the unit and mode of payment (e.g., per day, per case, per episode of care), but the delineation of behavioral incentives created by the various alternatives. All of the objectives of the participating groups that will utilize the payment system must be described and made explicit. Any factors to modify or adjust the basic system to recognize differences among providers or special aspects of care must be considered. These factors include urban or rural location, teaching status, and other characteristics which may modify the costliness of care for like cases treated in different facilities.

- An impact assessment of the redistributional outcomes for affected parties and of other aspects of the delivery systems must be performed. What are the consequences, both intended and unintended, for the structure of the health care delivery system? Will data/administrative changes be necessary, and will additional changes in policy be necessary?

What follows is a fuller, more complete discussion of each of these steps as they relate to the development of a PPS for excluded facilities. Issues that need to be addressed in considering a revised payment system for these hospitals and units are reviewed and criteria relevant for guiding progress through each of these tasks individually are put forward.

Exisiting Delivery System Issues

There are several issues that distinguish these specialty classes from acute care hospitals that must be carefully considered in formulating a payment system that adequately reflects the resources for excluded services.

The construction of any fair and equitable case-based prospective system must necessarily begin with a consideration of the types of patients receiving treatment in the facilities under consideration. For the specialty hospitals in this Report an initial profile of the types of patients receiving treatment in these facilities is needed. By extension, the kinds of services needed by these patients and the nature of medical (and other) conditions that lead to the range of specialized services across these four types, must be established and clarified.

Patient Types

Not surprisingly, the types of patients receiving care with this disparate set of hospital classes are numerous and complex. For payment purposes, however, a framework can be utilized to compare and contrast patients. Conceptually, patients typically treated in the four excluded classes of facilities fall into two broad categories of needed care:

- acute or "well-defined" treatment needs; and

- more long-term treatment approaches, reflecting (generally) more chronic care needs.

What differs across these four specialty facility classes are, of course, the clinical reasons for admission, as well as the mix of acute versus longer term treatment needs. For example, the greater part of the case load of children's hospitals involves the diagnosis and treatment of acute diseases and conditions. The process of pediatric hospital care for many patients is, in fact, probably closer to the paradigm of acute care than that of the other three excluded hospital types. Often the clinical goal is to minimize lengths of stay in order to reduce the stress of separation from parents. The purpose of hospitalization is also the same: to diagnose disease, then treat it. The services rendered thus can parallel those in adult acute settings, with a heavy physician emphasis and reliance upon diagnostic and therapeutic technologies. However, there are certainly notable and important differences from adult institutions. For children, diseases of aging (e.g., cardiovascular disease, cerebrovascular disease) are infrequent, while acute, self-limited illnesses, such as viral respiratory infections and gastroenteritis, are common. Clinical presentations in children also tend to be different than in adults. For example, juvenile-onset diabetes raises different clinical issues than diabetes occurring in an adult population.

In rehabilitation hospitals, stays may be longer and the emphasis of care can be on the treatment of functional limitations and social limitations ("disability"), whereas acute medical services are primarily concerned with pathology and

temporary impairment. The end point of an admission may not be a specific clinical event so much as the consensus of a multidisciplinary provider team that treatment goals have been optimally achieved. Still, a high percentage of patients --especially Medicare patients--enter the hospital with a confirmed diagnosis. Conditions such as stroke, hip fractures, and arthritis can often be treated in relatively short, well-defined and replicable periods of time.

Similarly, acute psychiatric care is frequently found in distinct-part psychiatric units in general community hospitals. As Chapter 3 discusses in greater detail, the type of patient, and especially the type of care, appears to correlate highly with treatment setting in psychiatric care. The delivery system in this excluded class presents itself as highly differentiated in that there is a tendency for long-stay patients to be treated in State/county hospitals, short-stay patients in psychiatric units of general hospitals, and private psychiatric hospitals to occupy a "middle ground." What makes this excluded class more problematic, however, is the unknown degree--perhaps more so than other areas of medical care--to which differences in treatment instructions and approaches reflect true patient need or different styles of practice of providers. In psychiatry, there is a much larger divergence of philosophies about how to treat a given patient.

At the same time, these four specialty classes of hospitals are characterized by patients needing either intermittent care at regular intervals over long periods of time, or continuous care reflecting states of relative patient disability. Such examples range from pediatrics with severe congenital diseases, to the mentally disabled in psychiatric hospitals, to the respirator-dependent patients in long-term hospitals.

About 10 percent of the psychiatric admissions for Medicare beneficiaries are for patients under 65 who are eligible because of permanent disability. The bulk of this group is presumably composed of individuals who may reasonably be described as chronically mentally ill. In addition, it appears likely that 5-10 percent of psychiatric use by those over 65 is by individuals who became permanently disabled before 65. These two groups probably qualify as chronically mentally ill.

For pediatric cases, there are a number of specific childhood diseases or conditions for which the acute, intervention model does not hold. Certain genetic diseases (e.g., cystic fibrosis, muscular dystrophies), congenital cardiac and gastrointestinal tract deformities, childhood malignancies (particularly leukemias), and a number of other presentations may require prolonged stays, with periodic/continual active intervention and physician involvement. There are between 7.2 and 10.8 million American children (10-15 percent of all children) with some type of chronic impairment. Of these, between 1 and 2.8 million have conditions sufficiently severe to limit their daily activities significantly (DHHS, 1983). These impairments necessitate repeated and varying treatment levels. One study, by Zook, Savickis, and Moore (1980) found that, of patients repeatedly hospitalized, 37.6 percent of the patients in the children's hospital examined over 1 year were repeatedly hospitalized for the same disease (RHSD). Over a 10-year span, 50.5 percent of the patients fell into the RHSD category. Among the 20 percent of the patients who had the highest costs during the year, 69.5 percent were in the RHSD category; 43.8 percent of the higher-cost patients had congenital defects (Zook and Moore, 1980).

Especially for rehabilitation and long-term facility patients, measures of levels of chronicity and the need for intermittent or continuing care represent a good initial approach to classification of a larger number of patient treatment needs. A substantial number of rehabilitation patients, and--almost by definition--the great majority of long-term hospital patients, can be expected to be on the upper end of a spectrum of disability. They are severely impaired, requiring a high level of nursing attention or technological support (e.g., chronic ventilator dependence).

For rehabilitation services, treatment goals are often more appropriately set within the context of functional level. In an elderly rehabilitation population, the presence of comorbidities may interfere with pursuit of active, intensive therapy or rehabilitation. Furthermore, their diseases may be chronic and progressive. Thus, rehabilitation may be required at several different times. At some point, progress toward functional goals may become clinically unreasonable (e.g., a stroke patient with multi-infarct dementia, who is severely cognitively impaired). These patients may more appropriately require a chronic custodial care setting.

Similarly, long-term hospitals depart from the acute episode intervention model. The purpose of hospitalization may often be viewed as palliative, not curative. The clinical endpoint of these admissions is not clear-cut. Patients often enter these hospitals with multiple diagnoses (e.g., cardiovascular disease plus diabetes plus severe obstructive pulmonary disease) or a single catastrophic diagnosis (e.g., muscular dystrophy). Diagnostic efforts during hospitalization are directed only towards acute "flares" within more chronic presentations. Treatment is similarly constrained to a more limited scope than in acute care settings.

Patients may, on occasion, be treated for the same acute processes (e.g., infections, heart or renal failure), but generally the decision has been made not to adopt more aggressive interventions (e.g., surgery) should the patient's situation deteriorate.

Transfer and Referral Patterns

It is precisely at the point where patients require significant and continuing amounts of medical care that excluded facilities become important. Over the last several decades they have developed as a specialized response in the evolving patterns of multi-leveled care systems. Excluded hospitals and distinct-part units cannot be viewed in isolation, but rather as a part of highly differentiated care systems in which different hospitals have different roles. For reasons pertaining to both efficiency of resources and quality care, patients diagnosed as requiring greater than average treatment needs are more often than not systematically transferred or referred to a few specialized facilities.

In psychiatric care, almost twice as many patients are discharged to another inpatient facility in the mental health system as to the general health care system (25 percent versus 12 percent). As previously noted, there is also a tendency for long-stay patients to be treated in State/county hospitals, short-stay patients in psychiatric units of general hospitals, and private psychiatric hospitals to occupy a "middle ground."

For rehabilitation services, most patients admitted to rehabilitation hospitals and units are referred from other hospitals. A 1981 American Hospital Association

(AHA) survey of inpatient rehabilitation facilities reports that about two-thirds of referrals came from other hospitals, while another 10 percent came from within the hospital (Mullner et al., 1983). For self-contained rehabilitation hospitals and units, primary referral sources were, respectively, other hospitals within the larger medical center and other sections of the hospitals of which they formed a part. Referrals from home accounted for less than 10 percent of all admissions, while nursing home referrals accounted for only 2 percent of admissions. A 1984 National Association of Rehabilitation Facilities (NARF) survey (1984) documented referral patterns similar to the AHA survey.

Rehabilitation care is further characterized by interruptions and by conditions requiring acute care--either a recurrence of the underlying problem creating the disability being treated or a new condition or complication. Acute care may be provided in the same facility if rehabilitation is being given in a defined unit of an acute care hospital or the patient may require transfer to an acute care hospital. The differing rate of discharge from the defined units to acute care hospitals may result from a different case-mix, from the ability to provide acute care services within the facility, or a difference in how a discharge is defined. The extent to which patients who are discharged to acute care hospitals are readmitted to rehabilitation facilities is not well known and the extent of outpatient rehabilitation care or home health services provided to patients who are discharged to the home is not well-documented.

Long-term hospital patients are transferred to acute care settings for surgery, intensive care unit treatment, and so on. There are also long-term

hospital patients discharged to facilities providing lower levels of care and to their homes.

For children's facilities, regionalization of pediatric services (such as perinatal services, cardiac surgery, end-stage renal disease (ESRD) treatment, cancer treatment, and multiple congenital malformation has been promoted nationally as a means of attaining economies of scale and assuring quality of care in settings of appropriate level (National Foundation--March of Dimes, 1976).

Effective regionalization requires appropriate transfer of severely ill children "up" (from general to tertiary level facilities) and of less severely ill children "down" (from tertiary to general hospitals). Under the current reimbursement system, there is a tendency "to transfer in a unidirectional manner only to a higher level of care; lower-risk patients to less intensive and less costly settings may not occur at all" (Kessel, 1981). There are financial barriers to transfer in both directions, such as regulatory obstacles to inter-county reimbursement (Kessel, 1981). In spite of the obstacles to "down" transfers, neonates transferred out of children's hospitals (DRG #385) are the second most frequent pediatric DRG. One study of a Neonatal Intensive Care Unit (NICU) in Utah found that 47 percent of admissions were infants transferred back to secondary hospitals (Bose et al., 1985).

Overall, it is important to recognize early in the policy development process that one common denominator in understanding why these facilities may not "fit" the present DRG system is that they are parts of highly differentiated treatment systems. As some transfers or selective admissions are observed, differentiation exists that may cause problems to a PPS system. Likewise, the greater the degree

of differentiation, the greater the amount of trouble. To the extent that transfers are made to and among other hospitals, it is difficult to capture the clinical judgment leading to those transfers in a DRG or other system. As Bachofer (1984) and others have suggested, the delivery system may prove more complex than originally thought. To the extent that a clinically appropriate set of referral relationships exists among providers, and those referral arrangements are not reflected in either a DRG-type system or the way prices are set, the consequence of moving to an averaging system may well be disruptive of existing referral patterns.

Cross-Subsidization of Services

A last characteristic that distinguishes excluded facilities involves specifically children's hospitals, rehabilitation distinct-part units, and psychiatric facilities (especially State/county institutions), and possible cross-subsidization of services. For children's services, the question has been raised as to whether or not pediatric charges in general hospitals or tertiary hospitals with pediatric units are subsidized through shifting some of the costs from children's to adult services. This could result in the charges for pediatric cases in those hospitals being lower than those in children's hospitals, which cannot shift costs from adult services.

If this is the case, and if prospective prices or rates are developed based on average charges, hospitals specializing in pediatric services, which do not benefit from such subsidies, may not recover their true operating costs and may be financially penalized by an average pricing system.

Cross-subsidies might occur in one of three ways: a hospital can increase charges to charge-based payers to generate revenues to cover shortfalls that may occur because some payers have restrictive definitions of allowable costs; the hospital could price individual services in such a way that the cost apportionment process results in more costs being apportioned to selected payers; and it can allocate costs in the stepdown process in such a way as to maximize reimbursement. For such cross-subsidization to be worthwhile to the hospital, two conditions would have to hold: the payer mix for pediatrics would have to be less favorable than the payer mix for the hospital as a whole,[1/] and pediatric services would have to be capable of being isolated for special treatment.

Second, it is important to note that the Medicare cost report, which is the basis of the calculation of the present DRG cost weights, allocates and apportions costs to departments and ultimately to DRGs based on accounting costs, derived according to the stepdown method, and not on the basis of charges. Thus, the simple comparison of the charges of pediatric tertiary and other hospitals may not be sufficient evidence of the existence of subsidies. Cross-subsidies could occur, however, if the averaging of (higher cost) pediatric charges for routine care and/or ancillary services were averaged with (lower cost) adult charges for routine care and ancillaries.

1/For a discussion of the evidence concerning this to date, the reader is referred to the section "Children's Hospitals and Pediatric Hospitalization" in Chapter 3 of this Report.

Classification System Issues

The DRGs were developed at Yale University by John Thompson and Robert Fetter under funding from the Health Care Financing Administration (HCFA) and utilize clinical judgment in concert with statistical analysis of a large number of hospital discharges. Procedurally, the present DRG payment system classifies a hospital case at discharge into one of 23 Major Diagnostic Categories (MDC) on the basis of the principal diagnosis. Once assigned to an MDC, the case is then further assigned to one of 468 DRGs on the basis of presence or absence of certain procedures, age of the patient, specific principal diagnosis, presence or absence of a significant comorbidity or complication, and in a few cases, whether the patient died or was transferred to another hospital. For reimbursement there is an additional "waste basket" for cases with surgery that is inconsistent with the principal diagnosis.

Evaluative Criteria

It is important to properly recognize the role of the classification system in promoting a cost-effective system. To some extent, the provision of care is independent of a classification system in a PPS. Given a set amount of prospective payment, any classification system would present a facility with the same financial incentives to provide care as efficiently as possible.

There are, however, two qualifications to this argument. First, the classification/payment system will determine the overall level of payment to a

hospital. Even though incentives are the same, a hospital struggling to meet its budget may behave differently than one in surplus. The threat of loss may be more of an incentive than the lure of gain. Hospitals subject to systematic losses under a classification system may be tempted to reduce levels of care inappropriately.

Second, the financial incentives at admission for particular types or classes of patients will be affected by the classification system. To the extent that the resource needs of a patient can be foreseen prior to admission, a patient may be tagged as a likely money loser. How easily patients can be so identified will depend on the classification system. A system that differentiates between patients with greater or lesser resource needs reduces the likelihood of discrimination at admission.

In addition to the incentive to minimize treatment, PPS for acute care facilities introduces an incentive to manipulate the classification system in order to increase reimbursement. This "gaming" of the system can undermine cost containment objectives. The classification system will determine "gameability" of any PPS, and relates to the problem in two ways. In the first place, a classification system based on selective criteria is easier to game. According to Jencks et al. (1984), there is consensus that a classification system should place minimum emphasis on "ambiguous information" that could be gamed.

A second way that a classification system affects gameability relates to its level of "fineness." The more categories there are, the more opportunities to move patients among groupings. By adding categories (for example, a severity modifier to a DRG), any regrouping that was previously possible remains possible, and some

new opportunities are created. The "manipulability" of a classification system must be considered as an important dimension of evaluation.

Lastly, a classification system should group patients in a "clinically meaningful" way--in accordance with the way clinicians view the condition of the patient or the technology of treating the patient. In Hornbrook's (1981) terminology, a system must be "acceptable" to those required to implement it. Clinicians are most accustomed to grouping patients on the basis of a diagnosis--a description of the disease. In addition, a clinically meaningful system of grouping will probably be better able to withstand changes in technology. Other classifications based on management strategies or treatment requirements may be meaningful as well.

Selecting Appropriate Measures

Excluded facilities can be characterized by their care for conditions whose treatment requirements are not well-described by diagnoses and procedure codes (or, in the case of children, are not well described by adult diagnoses.) For example, children have different diseases than adults (or different clinical presentations of the same disease) and can require different types of treatment, which may render a case-mix system for adults largely inapplicable to children. There are congenital diseases, which are by definition childhood diseases--some of which result in death before adulthood and are therefore unknown in adult medicine (such as Hunter's syndrome and cystic fibrosis). Then there are diseases that are associated with certain developmental stages that are confined to childhood (such as Sudden Infant Death Syndrome). Other diseases are found in both adult and pediatric populations, but the incidence is much greater in the latter (such as

asthma). Lastly, the fact that children's illnesses often present not only differently from adults, but in a fundamentally more enigmatic fashion because of children's lessened ability to verbalize symptoms, may be reflected in higher diagnostic costs compared to adults.

In mental health, functional status/chronicity measures can be as important in properly classifying psychiatric services as diagnosis. For example, individual needs may be defined clinically in terms of diagnosis, level of impairment/disability, and treatment requirements. This is closely analogous to the medical-surgical system. But in the mental health system, needs are also defined socially, in terms of the patient's ability to cope with the social demands of living in sheltered or unsheltered environments, and legally, in terms of the need of the patient and society to be protected from harm that the patient might cause. Although behavioral problems and impairments of ability to cope may result from neurologic and other diseases, such results of other diseases are defined as psychiatric problems, given psychiatric diagnoses, and treated in psychiatric settings. Such problems can require patient interventions that are less definable and long term than in the medical-surgical system.

Similarly, for rehabilitation and long-term facility patients, measures such as functional status or levels of chronicity may provide as good or better an approach to classification for case reimbursement as diagnoses. As previously noted, long-term hospital patients are on the upper end of a spectrum of disability. For rehabilitation services, patients with different pathologies leading to similar disabilities may form a more homogenous group than patients with the same diagnosis, who may span the treatment requirement spectrum.

Measures other than--or in conjunction with--diagnosis may, therefore, provide as good or better an approach to classification for case payment on a prospective basis. These might include such measures as functional status on admission, living situation, and general levels of social support.

Payment System Issues

PPS pays hospitals for care to Medicare beneficiaries at a per-case rate, which is set before care occurs and reflects the costs of care patients are expected to need rather than the costs for care the hospital actually provided. The transformation to PPS from cost-based reimbursement was actually composed of two separate reforms:

- paying for the case rather than for individual services (paying for larger aggregations of services has been termed "bundling"); and

- determining the payment from a schedule published before care is rendered (prospective payment).

It is helpful when considering a payment system issue to conceptualize prospective payment as being a sharing of risk between payer and providers. By paying only a prospective amount, HCFA requires the hospital or other provider to fully bear the excessive treatment costs. The hospital was "fully insured" for nearly all costs under retrospective cost-based systems. PPS radically changes the incentives to provide treatment by requiring full risk for inappropriate costs.

How well prospective payment works to promote cost-effective care depends on hospital response to the change in the method of reimbursement. PPS is intended to reduce the supply of inappropriate care during an episode. Preliminary evidence is that this is occurring. The Secretary's 1984 Report to Congress (November 1985) on the impact of PPS describes observed reductions in length of stay (LOS) and admissions in the partially phased-in system.

A critical determinant of hospital response to the payment system is how the hospital balances its financial interest in net revenues against the patient's interest in treatment. Under a cost-based system, the patient and provider shared a general interest in more treatment--the patient for more care and the provider for more revenue. This alliance is struck down by PPS. The more care a hospital provides under PPS, the less net revenue it retains.

The elements of design of the present PPS can serve as useful guides for constructing a system of prospective case-based prices for excluded facilities, especially as the impact of the new system is increasingly understood and refined. It is briefly reviewed here.

PPS Design Features

Once a case has been classified to a DRG category, operating payment is determined by a standardized payment amount, which represents the average operating cost for a typical Medicare inpatient stay, multiplied by a weighting

factor for each DRG, which represents the relative costliness of a hospital discharge in that DRG compared to the typical Medicare discharge.

During the initial years of PPS, this standard payment is a blend of the hospital's historical per-case cost, the regional average per-case cost, and the national average per-case cost. The hospital-specific portion is based on the individual hospital's historical allowable costs updated for inflation and accounts for 75 percent during the first year of the phase-in period. A "Federal payment" combines regional and national standardized prices and accounts for 25 percent of the fixed payment amount in year one of PPS and increases to 100 percent after the phase-in period. Beginning in October 1987, under current law, the fixed payment amount will be based entirely on national DRG prices.

During the phase-in period, then, each hospital's prospective payment by DRG is calculated by multiplying its blended standardized amount (the combination of hospital-specific and Federal components described above) by the cost weight for each DRG, with a declining portion of the prospective payment rate being based on the hospital's historical costs. The DRG cost weights have been calculated by HCFA using data from the MEDPAR (and later, the PATBILL) file, and Medicare cost report data. These cost weights are subject to periodic recalibration.

The PPS makes two important adjustments to the standard payment in order to reflect differences in per-case costs perceived as outside the reasonable bounds of provider's management. These adjustments for fairness include:

- hospital-level factors,

- outlier adjustments.

Medicare adjusts per-case payments to reflect a number of hospital-specific factors. The most important adjustments, however, are those applied on the basis of factors that are thought to reflect or influence differences between the kinds of inpatient cases seen in different hospitals. Two important adjustments are applied at the hospital level--the urban-rural adjustments and the teaching adjustment. Both of these adjustments are highly empirical and there is little consensus regarding their theoretical underpinnings. Three other kinds of adjustments are also notable and are discussed here.

- Urban-Rural Differences. The urban-rural adjustment is based on available Medicare evidence from 1981 data that per-case costs, after adjustment by DRGs, are substantially lower (approximately 25%) in rural areas. This may be due to lower costs of doing business, referral of more difficult cases within DRG categories to urban medical centers, use of simpler technology and treatment methods, or other factors. The PPS standard payment as a result is higher in urban areas. Though hospitals are dichotomously divided into urban and rural hospitals under PPS, there is likely to be a continuum between the urban and rural hospitals, not captured by this procedure even if the basic underlying typology of urban and rural hospitals is appropriate.

- Indirect Teaching Costs. The teaching adjustment is made by increasing the per-case payment for each tenth of an intern or resident per hospital bed. Prior to May 1, 1986, this rate was 11.6 percent, or double that

originally recommended by the Secretary's December 1982 Report to Congress: Hospital Prospective Payment for Medicare. Recent legistration, P.L. 99-272, modified the formula used to calculate the indirect teaching adjustment payment amount. Under this act, the adjustment rate for discharges occuring on or after May 1, 1986, but before October 1, 1988, will be approximately 8.1 percent. For discharges on or after October 1, 1988, the rate will be approximately 8.7 percent. The evidence is mixed as to whether the observed costs that have provided the basis for these adjustments result from higher costs of doing business, receipt of difficult referred cases, use of more expensive technology and treatment methods, wasteful activities undertaken in the interests of teaching, legitimate educational functions or other factors. However, the December 1982 Report to Congress asserted that teaching hospitals justifiably receive additional revenues due to demands their case load places upon them that are unaccounted for by DRGs.

- Labor Costs and Other Accounting Considerations. The standard payment is adjusted to reflect the local cost of labor. Errors in determining labor costs could, of course, create errors in hospital payments that might be confused with errors due to the case mix system. Adjustments for labor costs are made as if there were sharp boundaries between areas in which labor costs were homogeneous; in fact, labor costs obviously vary more continuously, though are somewhat within the individual hospital's control. Capital costs are handled outside of PPS, as are the direct costs of paying approved educational activities; costs of

supplies and equipment are assumed to be nationally uniform.

- Regional Differentials. The regional differences that exist, and have been well-documented, are thought to result from regional variations in efficiency or unnecessary regional variations in treatment practices. As already noted, regional rates are scheduled to be phased-out for payment purposes by 1988.

- Excluded/Exempted Hospitals. Finally, a number of hospitals are excluded/exempted from PPS on the basis of hospital characteristics. These include the four classes of hospitals and units that are the focus of this Report, alcohol and drug units, and other types of exempted hospitals that are accorded special treatment under PPS, such as sole community hospitals, cancer treatment and research hospitals, and regional referral centers.

In addition to hospital-level factors , PPS makes special additional payments for "outliers"--patients with unusually costly or unusually lengthy stays. The Social Security Amendments of 1983 required that not less than 5 percent nor more than 6 percent of payments under PPS be made through a system designed to account for "outlier" or unusual cases. This was implemented through a relatively simple way of identifying and paying for outliers; namely, for each DRG, a threshold length of stay was identified.2/

2/ The threshold was originally defined as either 20 days or 1.94 geometric standard deviations above the geometric mean length of stay, whichever was less; the calculation was performed on data from which cases 3.00 geometric standard deviations above the geometric mean had been removed. Subsequent revisions to these threshold criteria have been made in order to attempt to maintain outlier payments within the 5-6 percent range of total payments.

All necessary inpatient days above the length of stay threshold are reimbursed at a flat per diem rate, which is 60 percent of the average payment per day for patients assigned to that DRG. In addition, the outlier policy made allowance for patients who had very high bills, but did not exceed the length of stay threshold. For these"cost outliers," PPS originally paid 60 percent of estimated operating costs[3/] in excess of 1.5 times the Federal prospective payment rate or $12,000, whichever is greater. Subsequent revisions to those cost threshold criteria have been made in order to attempt to maintain outlier payments within the 5-6 percent range of total payments.

It is lastly important to discuss the way that transfers are handled under PPS, as they may be particularly important for excluded hospitals. It was previously pointed out that excluded facilities are part of highly differentiated treatment systems, and historically a substantial proportion of discharges from excluded hospitals has been to other institutions. Only part of the discharges to other institutions meet the definition of a transfer under PPS. Transfers occur when a patient is moved from a short-term acute hospital paid under PPS to another such hospital. When a patient is transferred between such hospitals, the transferring hospital will be paid a per diem amount for each day of the hospital stay, and the receiving hospital will be paid the full DRG rate. No payments in addition to the regular DRG rate are made for patients transferred from one inpatient area or unit of a hospital covered under PPS to another unit within the same hospital.

3/Operating costs are estimated to be 72 percent of covered charges.

Overall, the design features of the present PPS should serve as useful first markers in developing a payment system for excluded facilities. To the extent that the present system works to promote cost-effective and high-quality care, these features can further provide lessons concerning an appropriate method and unit of payment, as well as the need to adjust for differences in various characteristics across these classes.

Impact Assessment Issues

Payment systems have had a major impact on how and where care is provided. The development and proposal of any PPS for excluded facilities will raise a number of concerns about its consequences for providers and the structure of the health care delivery system. The more prominent concerns include:

- the levels of systematic and unsystematic risk across excluded classes of hospitals and patients, and

- the anticipated levels of administrative burden.

Risk is the degree of dispersion of payoff around an expected value. Hospital financial risk at the case level is the means by which PPS changes incentives to providers. Case-level risk must, therefore, be part of PPS. Since it is the hospital, however, and not the individual patient, that is at financial risk, it is appropriate to examine the effects of PPS using the hospital as the unit of analysis.

Hospital-level risk arises from two factors, what could be called unsystematic and systematic effects of a payment system. This distinction betweer these causes

of potential fiscal distress is important because different research bears on each, and the possible remedies for the problems are different.

Unsystematic Risk

Random or unsystematic effects occur because the set of actual patients receiving care at a facility will never be exactly like the "average" patients within each category of a classification system. For this reason, costs will vary from revenues because of such random factors as are unaccounted for in the classification system. This is a simple risk. Cost/revenue discrepancies due to random effects will tend to balance out over time as the number of discharges grows. Facilities with many Medicare discharges are protected from unsystematic risk by the law of large numbers. The December 1982 Report to Congress: Hospital Prospective Payment for Medicare refers to the "law of large numbers" and states that "approximately 50 Medicare cases are needed for the averaging process to work reasonably well."

A few calculations lend support to these assertions. Consider a DRG with a coefficient of variation (CV)[4/] of 1.0, which implies the standard deviation is the same value as the mean. For example, if the average cost were $2,000, the standard deviation of cost for this DRG would also be $2,000. There is certainly a good deal of risk at the individual case level; but how much risk does a facility bear?

[4/] A commonly used measure of risk is the standard deviation, which is (the absolute value of) the expected difference between a value of a distribution and the mean. The standard deviation divided by the mean of a distribution is the CV. This measure of dispersion corrects for the magnitude of the average value of the variable. Research on the CV within classifications bears on the criterion of minimizing risk to facilities under a payment system. Differences in CVs in classification systems have been the main focus of case-mix research.

In terms of unsystematic risk, of course, the facility has as much chance to lose or gain. A high CV implies that the chance of relatively high individual gains is greater. Table 2-1 illustrates risk as a function of discharges when the CV for a DRG category equals one. (In the case of a group of categories, such as the nine current psychiatric DRGs, a CV of one can be thought of as being the weighted average of the CVs for the various categories in the group.) With no change in LOS in response to prospective payment, the risk of losing 10 percent under prospective payment falls to 16 percent with a caseload of 100. At a caseload of 400, the risk is trivial.

There may be some concern for smaller facilities or units. For distinct-part units, though, because the unsystematic risk of cases is independent of the risk associated with medical and surgical cases, addition of an excluded unit may actually decrease the risk at the facility level. Only excluded hospitals that treat few Medicare patients may not have a large enough caseload to rely on the law of large numbers to balance gains and losses over time. The total caseload of many of these facilities is likely to be in the hundreds, however, so that the financial risk of unsystematic losses from Medicare will be small in relation to total income of the facility. For example, consider a facility with only 100 cases averaging $2,000 per case of which 25 cases were under PPS with a CV of 1.0. The facility faces only a 2 percent chance of a loss of 10 percent or more during the year on its overall operation.

In addition to the law of large numbers, the problem of unsystematic risk can be reduced by "refining" the classification system -- in other words, by increasing the number of patient categories to achieve more homogeneity within groups. Adding a severity adjuster to a DRG classification system would be one example of

TABLE 2-1

The Law of Large Numbers, Provider Response, and

Unsystematic Risk to Facilities under PPS

Likelihood of Losing 10% or More When CV = 1.0*

Annual Number of Medicare Discharges	Provider Response: None	10% Reduction in LOS	20% Reduction in LOS
1	46%	41%	36%
25	31%	13%	3%
100	16%	1%	0.1%
400	2%	0.01%	0.1%

*The numbers in this table rely on an assumption that the distribution of cases is normal within classes and the CV is 1.0.

this. Provider response is a second effective protection against unsystematic risk. A 10 percent reduction in LOS as a result of prospective payment is equivalent, for example, to a quadrupling of a caseload in terms of protection against a 10 percent loss.[5/] Finally, payment system options, such as the present outlier policy, will reduce the problem of unsystematic risk. After some cutoff, long LOS will be partially reimbursed on a cost basis.

Systematic Risk

A more significant concern involves systematic risk. Systematic factors do not succumb to the law of large numbers. A systematically more expensive facility or one that draws a systematically more resource-intensive caseload (in a dimension not reflected in the classification system) will have an expected loss per case that does not diminish with increases in the number of discharges. The distinction between risk and systematic effects is recognized by Jencks et al. (1984) who state "case-by-case inequities may cause some management difficulties, but it is the hospital-by-hospital equity or inequity which makes the system fair or unfair."

[5/] The value of standard normal distribution used to determine entries in Table 2-1 is

$$z = \frac{L + S}{CV/\sqrt{N}}$$

where L = Loss, e.g., .10
S = supply response, e.g., .10
CV = 1
N = discharges

The value of this expression is doubled when either L + S doubles or N increases by a factor of four.

Systematic under-reimbursement could lead to discrimination against admission for patients anticipated to be more costly than average within their classification. It is this concern that brought about payment adjustments for urban and teaching hospitals in the original PPS legislation. In the excluded hospital area, a main concern is that a more specialized facility may systematically treat more costly cases. A corollary to this is that within an excluded hospital class some hospitals systematically draw more severe caseloads than others. A classification system based on the average cost across all types of facilities may be detrimental to classes of institutions, such as specialized excluded facilities. In comparing case-mix classification systems, then, a critical issue develops in determining whether the variation in treatment requirements that is not explained by the classification system is associated with particular groups of hospitals in such a way as to result in unfair payment.

In the context of a payment system, if a hospital draws more costly cases within a DRG or other grouping, utilizing severity adjustors that distinguish between the more and less costly cases and paying accordingly will reduce systematic risk. Payment system options that relate reimbursement to cost also ameliorate systematic effects. Payment under TEFRA, while it fails to distinguish necessary from historical costs (see Chapter 1), does, for example, build in strong adjustments to systematic risk. On the other hand, if cross-subsidization of services is occuring in certain types of excluded facilities, the calibration of prices may systematically underestimate costs per case for these providers. Research on the ability of classification systems to explain variance in resource use bears on the empirical importance of the problem of systematic risk.

There are no studies, however, that really begin to decompose the contribution of patient need versus style of practice in regard to resource use. To the extent that it is the provider patterns of care that account for differences in resource use, as opposed to patient characteristics, these patterns of care could be changed, perhaps dramatically, with no impact on quality of care. A large enough response by facilities currently offering the most intensive versions of therapy may bring them into line with the average.

Nonetheless, where there is a divergence of treatment philosophies about how to treat a given patient--as is the case with psychiatry--provider responses leading to reduction of treatment patterns will be difficult to achieve. In such a case, prospective payment systems could cause significant redistribution of resources among facilities that would not be considered clinically appropriate by practitioners. Redistribution per se, apart from issues of cost effectiveness, is not necessarily desirable. Classification and payment options that moderate unwanted redistributions must be given careful consideration.

Administrative Burden

A national system of classification and payment must rely on uniformly collected data. The system should be easily applicable and implementable in any health care setting. Ease of implementation has been a criterion of general consensus, usually in the context of the advantage of using data items available on

the Uniform Hospital Discharge Data Set (UHDDS).[6] These data elements are routinely collected by Medicare and many other payers for all hospital admissions and are, therefore, routinely available in automated form for case-mix classification. Whether a classification system uses UHDDS data is obviously a matter of considerable practical importance, since other data are not routinely available either to test a system or to set weights.

Classification systems, such as Horn's severity index, which require trained raters to score the patient's hospital record, perform less well on a criterion of low administrative costs in comparison to fully automated classification systems. The extra cost of any classified system should, of course, be considered in relation to whatever benefits it provides.

From the point of view of ease of administration, a more gross system, using fewer data elements, would be preferred. The more straightforward the classification system, the less payers and providers will have to do in order to collect, transfer, and process the information necessary to effect payment. As was discussed earlier in this chapter, these goals run somewhat counter, though, to the possible need to collect measures other than--or in conjunction with--UHDDS measures for classifying patients in excluded facilities. To the extent that additional and reliable data elements might be generated for excluded hospital payment system purposes, the overall benefits versus administration impacts will deserve careful assessment.

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[6] The UHDDS is a set of routinely collected data elements found on the cover sheet of almost all medical records of a hospital stay. The UHDDS comprises age, sex, discharge diagnoses, procedures performed, type of place to which discharged, and whether the discharge was alive, dead, or against medical advice. Under UHDDS rules, the diagnosis that is listed first is the "principal" diagnosis -- that diagnosis which, after study, is determined to be principally responsible for causing the admission.

Discussion

The construction of a new PPS must begin with an explicit statement of the goals and objectives of such a system, and correspondingly, the set of values or framework that will be utilized to evaluate its relative success must be established. A PPS for excluded facilities will be judged most closely on its capability to promote cost-effective delivery of care for Medicare beneficiaries and its level of equity or fairness of payment across participating providers.

This chapter has also specified the process that must be undertaken and followed in constructing a new payment system for excluded providers. In its examination of a discussion of each of the fundamental stages in this process, a number of key distinctions that separate excluded facilities from the acute care system have emerged. Each of these distinctions has implications for subsequent deliberation and development of payment policies. These include:

- Acute-illness patients. Excluded facilities, like acute-care facilities, treat a range of patients with acute illness. What distinguishes excluded facilities is the fewer numbers of these patient types. A second distinction is the possibly different distributions of LOS for these patients between classes of facilities. To the extent that these patients have inpatient stays that are well-defined (i.e., low variance in LOS), the distinction between long-stay patients versus short-stay patients can not be expected to present difficulties for a PPS system as such. Further, to the extent that the case-mix of excluded

facilities is characterized to a significant degree by well-defined acute-care patient types, a payment system similar to the existing PPS might be expected to be developed with a relative degree of success. If, on the other hand, the inpatient stays are poorly defined (e.g., high variations in LOS), refined case-mix measures or payment system adjustments (i.e., outlier policies) may be needed.

- Chronic-care patients. Excluded facilities treat a proportionately greater share of the patient population with chronic illnesses. Inpatient care for these patients is manifest by a spectrum of approaches that range from episodic to continous care. For payment system purposes, these patients can be characterized by roughly three patterns of inpatient care:

  1) repeated short-stay admissions,

  2) some aspect of "integrated" care involving multiple treatment settings and varying inpatients stays over some period of time, and

  3) continuous, long-term care.

The first and third patterns of care for chronic patients pose only minor difficulties in developing a PPS system for excluded facilities. In the first instance, classification schemes and payment levels can be constructed in ways similar to the existing system for acute-care/short-stay patients. The third pattern will not impinge upon the Medicare program because of the present benefit structure that is generally confined to the elderly (65 years and older) and to a limited number of inpatient hospital days (see Chapter 1). Because Medicare

was designed by Congress and continues to function largely as an insurance program for payment of medical bills during periods of acute illness, only in the case of rehabilitation and psychiatric acute-care patients is Medicare a primary payer of care in excluded facilities. For chronic continuous-care patients treated in excluded facilities, such as the respirator-dependent, it is Medicaid that is generally the insurer.

For chronic patients in need of a more intermediate pattern of care, considerable deliberation should be used in developing and implementing a PPS system. For these patients in excluded facilities, inpatient care is (and should be) one level of many that occur during a period of treatment. By isolating the episode of inpatient care (from the larger pattern of integrated care), and paying this prospectively, distortions may be introduced into appropriate patterns of care.

- Differentiated Systems. This is closely related conceptually to developing payment systems around integrated approaches to the delivery of care. Likewise, this characteristic poses a problem in designing a PPS system, introduced by implicit or explicit referral patterns in the areas of treatment delivered by excluded facilities. In

the context of discussions of this chapter, this characteristic is a problem of systematic risk.

As research has proceeded through each of the four fundamental task areas, and results and accomplishments have been achieved and reported, payment system options for addressing these key distinctions and including excluded facilities under a prospective payment system have begun to take shape and been taken under consideration. This translation of research into implications for policy and further into legislative and regulatory recommendations constitutes, in essence, a fifth and final fundamental task in constructing a payment system. The next chapter reports in some detail on the results of the undertaking of these five stages of development for each of the four specialty hospital classes.

Chapter 3

REVIEWING RESEARCH STUDIES ON PPS FOR EXCLUDED HOSPITALS

Introduction

Following the mandate outlined by the 1983 Amendments, HCFA's Office of Research and Demonstrations has funded or cofunded a wide range of research studies related to the advisability and feasibility of a prospective payment system for the four excluded hospital classes. In addition, a large number of studies outside the Department on this topic were monitored on a concurrent basis.

Research conducted under the auspices of the Department was directed towards the undertaking of a subset of the five general tasks delineated in Chapter 2:

- an analysis of the service delivery system,
- the development of a classification system,
- the design of a payment system,
- an impact assessment of the redistributional aspects of the payment system, and
- legislative and regulatory recommendations.

This chapter provides a synopsis of the unique aspects of each hospital specialty class, reviews and analyzes relevant research, and draws implications for policy. Each section of this chapter is structured to parallel logically the five developmental tasks outlined above. Each section includes an initial description and analytic extension (from Chapter 2) of the particular excluded group being examined. Research undertaken and funded by the Department on the development and performance of classification and payment systems is described and analyzed. A synthesis of other available research is presented. Results from impact

assessments are reported. Depending upon the findings for the excluded class of facilities, a direction for payment purposes concludes these chapters, with implications for specific legislative and regulatory proposals, and directions for future research.

Children's Hospitals and Pediatric Hospitalization

Although only a very small proportion (0.5 percent) of its budget is directly devoted to children under the Medicare program, HCFA plays an important role in payment for pediatric health care--especially pediatric hospitalization--and in the financial health and visibility of pediatric hospitals. This role has stemmed from its initiative and leadership over the past decade in researching and developing case-mix and payment systems for health care delivery. The implementation by HCFA of the new PPS has, furthermore, stimulated many State Medicaid programs as well as other large payers who account for a large proportion of child health financing in this country, to reconsider their financing strategies.

Analysis of the Delivery System

Pediatric hospitalization is provided in several types of settings: in tertiary pediatric hospitals, university hospitals with primary pediatric residency programs, community hospitals with pediatric residency and community hospitals without pediatric residency. Throughout this section "children's hospitals" will be used to designate hospitals in which the majority of patients are less than 18 years old;[1/]

[1/]It will be recalled from Chapter 2 that along with Medicare certification, this is the only criterion for exclusion status under PPS.

"tertiary pediatric hospitals" will be used to refer to both children's hospitals and university teaching hospitals which have primary pediatric residency programs; and pediatric hospitalization will be used to refer to hospital services to children in all types of hospitals. These distinctions are useful as some of the issues related to prospective payment for pediatric hospitalization stem from the formulation and application of the DRG system itself, and apply to pediatric hospitalization regardless of hospital type. Other issues, however, arise from the particular case-mix thought to be served by tertiary pediatric hospitals. Still other issues relate to the particular institutional situation of children's hospitals only. While the more narrow focus is on children's hospitals because they were specifically excluded under the 1983 Social Security Amendments, the broader policy context of all pediatric hospitalization is essential from the perspective of implementation of any case-mix classification and pricing system.

Pediatric Hospitalization. Hospitalization rates for pediatrics, measured either as admissions rates, patient days per capita, or average LOS, are considerably lower than those for the general population. When children are hospitalized, accidents (fractures and intracranial injury) constitute 2 of the 6 most common reasons for admissions. Chronic problems and diseases (congenital anomalies and asthma) are also important contributors to hospitalization among children. But the greater bulk of hospital utilization among children occurs among infants and young children.[2/] The discharge rate for children less than 1 year of age is three and one-half times that of children less than 15 years of age, and the average LOS for infants is one and one-half times longer.

2/This is true even if routine hospitalization at birth is excluded.

The higher hospitalization rate among infants is, in part, due to the greater fragility of younger children, in whom clinical status is more likely to deteriorate rapidly than in older children or adults. In addition, the younger the child, the less the likelihood that objective clinical evidence of illness will become manifest. As a result, aggressive treatment such as hospitalization becomes much more warranted. For example, any fever in a child less than 2 months of age almost automatically will have a consequence of at least a short hospitalization for purposes of observation.

Given these patterns of care for infants (e.g., observation when uncertainty exists), there may occur a greater variance in length of stay among children having a given condition compared with adults. In addition to catastrophic illness requiring treatment in NICUs, there are several reasons to admit a young baby overnight for observation while awaiting, for example, laboratory results. If this greater variance exists, it may benefit hospitals with stays which are shorter than average while penalizing those with longer stays.

On the average, pediatric hospitalization stays are shorter than those for adults (see Table 3-1). As with adults, children's average LOS tends to increase directly with the size of the hospital. For children under 15 years in hospitals with 5-99 beds, the average LOS in 1981 was 74 percent that of children in hospitals with more than 500 beds. This probably reflects the fact that larger hospitals are more likely to be tertiary and/or teaching centers, and thought to be caring for patients in need of greater resource intensive treatment than are smaller hospitals. As with adults, the average LOS for children varies according to geographic region,

though variation is less pronounced than are the differences for adults. Stays in the Northeast and the South tend to be slightly longer than in the North Central and the Southwest.

The average LOS of infants hospitalized for neonatal morbidity is about 14.2 days, and it is not unusual for such infants to be hospitalized for a month or more (Kovar, 1978). The longer average stays of these infants, and the fact that they are usually hospitalized in NICUs, which are extremely expensive, make payment issues related to neonates especially pertinent.

There is evidence that children who are repeatedly hospitalized for the same illness make up a large proportion of the higher cost patients in children's hospitals. In Chapter 2, it was noted that a significant proportion (as high as 50 percent) of pediatric patients were RHSD over a ten year period. Depending on the diagnosis, these children may either require periodic acute care, progressively more intensive and expensive care or, in contrast if their condition is ameliorated by growth, development, or treatment, progressively less expensive care (Quilty, 1985).

Hospitals Providing Care to Children. According to a recent survey by the National Association of Children's Hospitals and Related Institutions (NACHRI), there were 51 registered children's hospitals in the U.S. in 1982 that provided general medical and surgical acute care services (NACHRI, 1984). These facilities correspond roughly to the current list of 49 children's hospitals excluded from the PPS. In addition, 21 children's hospitals specialized in orthopedic care; 9 in rehabilitation medicine; 31 in psychiatric care; and 14 in other or mixed services.3/

3/Many facilities from these latter groups of hospitals have obtained exclusion status under rules and regulations for rehabilitation, psychiatric, long-term hospitals and distinct-part units, and is discussed in later sections of this chapter.

Table 3-1

Number and percent distribution of patients and days of care and average length of stay for patients discharged from short-stay hospitals by age of patient, according to bed size of hospital
United States, 1981

Sex and Age	Number		All Sizes	6-99 beds	100-199 beds	200-299 beds	300-499 beds	500+ beds
			Number of patients discharged in thousands					
All patients discharged	38,544		38,544	6.94	7,016	6,091	9,418	9,076
All ages	38,544	(169.3)1/	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years	3,733	(72.9)	9.7	8.7	11.9	9.8	8.7	9.6
15-44 years	15,725	(148.7)	40.8	38.8	40.1	40.0	40.8	43.4
45-64 years	8,677	(195.3)	22.5	21.3	21.3	21.7	23.5	23.9
65 years and over	10,408	(396.5)	27.0	31.1	26.6	28.6	27.0	23.1
			Number of days of care in thousands					
All days of care	277		277,230	40.911	46,580	43,925	72,175	73,639
All ages	277,230		100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years	17,270		6.2	4.9	7.5	6.3	4.9	7.4
15-44 years	81,379		29.4	28.3	29.1	26.9	29.3	31.5
45-64 years	69,492		25.1	22.7	23.9	23.5	25.8	27.3
65 years and over	109,038		39.3	44.0	39.5	43.3	39.9	33.8
			Average length of stay in days					
Total	7.2		7.2	5.9	6.6	7.2	7.8	8.1
Under 15 years	4.6		4.6	3.3	4.2	4.6	4.3	6.2
45-64 years	8.0		8.0	6.3	7.4	7.8	8.4	9.3
65 years and over	0.5		10.5	8.3	9.9	10.9	11.3	11.9

Source: DHHS, PHS, NCHS, Utilization of Short-Stay Hospitals, 1981. August 1983. Excerpted from Table B, p. 4.

1/numbers the parentheses are rate/thousand

Using AHA survey data, Hadley and Feder (1985) similarly found 50 hospitals classified by the AHA as short-term care institutions limiting services primarily to children. Although less than 1 percent of the Nation's hospitals beds, the authors further found that these children's hospitals accounted for about 10 percent of the Nation's general pediatric and neonatal intensive care beds, and 30 percent of all pediatric intensive care beds. Among short-term general hospitals nationally, the 3.4 percent with 50 or more pediatric and/or neonatal care beds also played a very disproportionate role in providing care to children. These hospitals, which are much larger than other hospitals, contained 11 percent of all hospital beds, but 23 percent of general pediatric beds, 52 percent of pediatric intensive care beds, 52 percent of neonatal intensive care beds, and 58 percent of neonatal intermediate care beds. Other short-term general hospitals provided much less children's care per institution, but in the aggregate were still responsible for the major share (66 percent) of the Nation's general pediatric care. Consistent with their smaller average size, their role in pediatric intensive care and neonatal care was much smaller. Finally, rehabilitation, psychiatric, long-term and other specialty hospitals, including those limiting care primarily to children, accounted for a very small portion, about 2 percent, of designated children's beds.

Children's hospitals also differ significantly from general hospitals in kinds of ownership, teaching status, location and service/staffing characteristics. Only one of the children's hospitals in this country is publicly owned. In contrast, almost one-third of the general hospitals with 50 or more children's care and one-fifth of the other general hospitals are publicly owned. Hospitals providing large amounts of care to children are much more likely to be teaching hospitals with pediatric units than other general hospitals. Most children's hospitals belong to the Council of Teaching Hospitals, but most of the others also have approved teaching

programs. Almost all children's hospitals are located in the Nation's largest cities, whereas 61 percent of larger general hospitals are located in the largest cities. For other general hospitals, however, more than one-fourth are in the 100 largest cities, 44 percent are in other metropolitan areas, and nearly one-third are nonmetropolitan communities.

Finally, patterns for physicians, residents, and pediatric staff in the children's and large general hospitals are very similar. The one major difference between the children's and large general hospitals is in total staff per 1,000 adjusted patient days. Children's hospitals employ almost 40 percent more staff, primarily professionals such as recreational, physical and clinical therapists, suggesting that case mix in these hospitals may include relatively more cases with chronic or disabling conditions than at general hospitals (Hadley and Feder, 1985).

The suggestion of a differing pediatric case-mix across settings was recently confirmed with evidence from a study cofunded by HCFA,[4/] the Pew Memorial Trust, and the membership of NACHRI. Data services for the study included a sample of approximately 500,000 pediatric discharge abstracts provided by the Commission on Professional and Hospital Activities (CPHA). The discharges selected were from five identifiable hospital provider settings--children's hospitals, university hospitals with pediatric residency program(s), urban hospitals without a pediatric residency program, and rural hospitals without a pediatric residency program--during the period January-December 1982. These five populations were drawn to provide an examination of the characteristics of pediatric hospitalizations across settings as well as the characteristics of adults versus pediatric patients.

[4/] Cooperative Agreement No. # 95-C-98570/3-01

A subset of 95 DRG categories comprising 80 percent of the discharge sample were subjected to detailed evaluation concerning the distribution of types of pediatric cases by diagnostic category across types of hospitals. Clear differences in the distribution of cases across types of hospitals were found, though children's hospitals in themselves seldom appeared to be unique. Most commonly, the children's hospitals appeared to be very similar to university teaching hospitals with pediatric residencies. Among the patterns of findings established were that:

- children's and university hospitals treat a much broader range of cases than other provider types;

- children's hospitals experience the highest proportion of cases in surgical DRGs--32.6 percent;

- virtually all of certain pediatric conditions--cardiovascular disease, nervous system neoplasms, leukemia and other chemotherapy cases are treated in children's and university hospitals; cancer patients are treated predominantly in children's and university hospitals. Children's hospitals, for example, treat 16 times the proportions of cancer patients seen in nonteaching hospitals.

- children's and university hospitals have a higher proportion generally of cases with comorbidities and complications, patients under five years of

age, and patients with congenital disorders. A higher proportion of their neonates have low birthweights, respiratory distress syndrome, and similar serious conditions.

The most outstanding exception to these findings was MDC 15 (Neonates), for which children's hospitals had a substantially lower proportion of cases than the other hospital groups, including university hospitals. This finding, however, may have been, in part, the result of the fact that children's hospitals do not have delivery rooms and serve as referral centers for neonates born elsewhere. Also, some incoming babies may or may not be assigned to the neonatal MDC, depending upon principal diagnosis and surgical procedures.

A second area of investigation in this study concerned potential differences among types of hospitals in treatment intensity case or resource use for pediatric patients within individual disease categories. Patient severity was assumed to be associated with resource use. Resource was measured primarily by two variables: length of stay and total charges.

Resource use was found to differ widely across both MDCs and DRGs, regardless of hospital type, though some basic patterns of resource use by DRG category emerged from the analysis, including:

- distinctly higher levels of resource utilization in children's and university teaching hospitals in 35 DRG categories; and,

- similar levels of resource intensity in all hospital types in 10 DRG categories; in other words, the evidence is suggestive that for

certain childhood conditions (such as tonsillectomies), children's hospitals and university teaching hospitals with pediatric residences treated cases no more or less expensively than community hospitals.

There were several, different patterns of resource by hospital type for 38 DRGs; in another 12 DRG categories, too few cases across all of the five settings disallowed any meaningful comparisons.

For the 35 DRG categories with increased levels of resource intensity, the implication that might quickly be drawn is that children's and university hospitals treat the most severe patients. This indication of systematic upward bias in case severity for these institutions must be strongly tempered by the fact, however, that resource consumption was the only feasible measure of severity available. In addition to being a proxy for severity, resource use itself was measured by the proxy variables length of stay and charges, and charges were available for less than one-half of the cases in the pediatric sample. This limitation obviously clouds the validity of findings based on these measures, and at least raises the possibility of differences stemming from practice style (versus need).

An attempt was made to use SysteMetrics' disease stage measure, a more direct measure of severity than resource use, but for a variety of reasons it did not play a major role in the assessment. However, in another study by Long et al. (1985) utilizing the same CPHA data base, disease stage was measured and compared among the same five hospital types. Overall, they found no difference in severity among the hospital groups. However, when comparing the proportion of patients in more severe disease stages (categories 3-5), children's hospitals and

university teaching hospitals had over twice the proportion of severe patients as did the other hospital types.

Finance and Payment. While only a small part of the Federal health care budget is spent on pediatric hospitalizations, public sources of funding play an extremely important--indeed, pivotal--role in financing this care. Almost half (45.8 percent) of the expenditures on pediatric hospitalization comes from public sources, the most important of which is the Medicaid program. Medicaid was the principal source of payment for 18.5 percent of the patients under 15 years of age who were discharged from non-Federal, short-stay hospitals in 1979. This reliance on Medicaid is higher among children than any other age group. It was second only to private insurance (which was the principal source for 66.9 percent of the patients). Children represent the largest single eligibility group in Medicaid (23.2 percent of the eligibles). Due to their low rates of hospitalization, however, they account for a disaproportionately lower percentage (13.6 percent) of Medicaid expenditures. In FY 1983, Medicaid spent about $2 billion of its program budget on children's hospitalization. The Medicare program covers a small number of children under the ESRD program. It is the principal source of payment for 1.2 percent of hospitalizated pediatric patients. As of mid-year 1982, 3.5 percent of the ESRD beneficiaries were children less than 15 years old.

Chapter 2 stated that between 7.2 million and 10.8 million American children (10-15 percent of all children) have some type of chronic impairment. Of these, between 1 million and 2.8 million have conditions sufficiently severe to limit their daily activities significantly (DHHS, 1983). The Crippled Children's Program

(mandated by Title V of the Social Security Act, financed by the Bureau of Community Health Services and administered by the States) covers medical services for handicapped children. Funding allows the program to serve approximately 750,000 children annually (DHHS, 1983).

Although "no charge" (i.e., bad debt, charity, and teaching cases) accounted for only 0.1 percent of the discharges among children in 1979, it was the principal source of payment for a greater percentage of patient days for children than for any other age group. Perhaps more striking, though, the average LOS for "no charge" children was almost three times longer (11.6 days) that the average LOS for all children (4.3 days).

Issues Specific to Children's and Tertiary Pediatric Hospitals. There are several reasons why the DRG-based PPS as it is currently formulated may be inadequate to predict the resources needed by pediatric patients. To some degree these have been reviewed in Chapters 1 and 2, but are briefly presented here.

First, the data base used to develop and validate DRGs may have under-represented tertiary level pediatric cases. The data base used to develop DRGs was drawn from adult acute care hospitals. No children's hospitals were included in the data base, and there were, therefore, fewer tertiary-level pediatric patients included in the sample than there would have been if children's hospitals had been included.

Secondly, children have different diseases than adults (or different clinical presentations of the same disease), and require different types of treatment, which

may render the case-mix and/or relative weighting systems for adults largely inapplicable to children.

Over the long run, children's hospitals may be relatively efficient due, in part, to the highly differentiated levels of care for children's hospital services. Still, various specialized pediatric services and standby capacities more likely to be present in tertiary hospitals can make caring for patients there more expensive than in other hospitals.

Third, existing refinement measures within DRGs for intensity of treatment requirements may not be sufficiently sensitive for the tertiary pediatric hospitals serving--as recent evidence reveals--disproportionately higher numbers of extremely ill children that may appropriately require significantly more resources than do less severely ill children.

Fourth, the age categories used in formulating the existing DRGs may be too inflexible or unrefined to reflect the utilization and cost experience of children's hospitals. The only age divisions included in DRGs relating specifically to children is made for children less than 18 years old. For certain DRGs, a child's age can have a strong relationship with average LOS.

Fifth, transport costs are imposed on tertiary pediatric centers receiving referrals due to the clinical needs of the patients. These costs are not imposed on the referring hospitals. When asked by an outlying hospital to accept a critically ill child (whether a neonate or an older child), it is the tertiary center which provides the transport team (the doctor and nurse who are specially trained to stabilize and

transport critically ill children). Stand-by capacity for transports must be available, which increases the costs to the tertiary center.

Sixth, the issue has been raised as to whether or not pediatric charges in general hospitals and/or tertiary hospitals with pediatric units are subsidized through shifting some of the costs from children's to adult services. This could result in the charges in those hospitals being lower than those in children's hospitals, which cannot shift costs to adult services. In such a case, and if payment rates are based on average charges, hospitals specializing in pediatric services, which do not have access to such subsidies, may not recover their true operating costs and may be financially penalized by the system.

Performance/Development of Classification Systems

Using the CPHA discharge data base described earlier and building on results examining systematic differences in pediatric case-mix and (possible) resource requirements across different types of facility settings, research has been undertaken to test whether:

- current DRGs adequately define homogenous groups of pediatric patients in all types of hospitals, and

- if an alternative classification can be identified that better defines homogeneous groups of pediatric patients, or patients in children's hospitals.

A review of the preliminary results of this work suggests that a refined group of DRGs may, in fact, perform much better for pediatric hospitalization at least in terms of reducing variation in length of stay. In addition, there is evidence that they satisfy the criterion of clinical meaningfulness.

The study investigated the additional variance reduction that could be achieved among pediatric diagnostic categories with the application of improved clinical definition and case-mix (or severity) measures other than those contained in the current PPS. All DRG categories with more than 500 cases were examined in detail. The alternate systems included the SysteMetrics' disease-staging categories; Pediatric Diagnosis System, a modified pediatric version of disease-staging categories; the Patient Management Categories (PMCs) of Blue Cross of Western Pennsylvania, the Horn Severity of Illness Index measure, and variables for age and birthweight.

DRGs as a whole were found to be better or equal to alternate systems.[5/] Applying the same statistical method for defining diagnostic groupings as that of the original DRGs at Yale University, categories were adjusted to reflect the special situations of pediatric care. Certain changes were "global" in the sense of reassigning patients from across all MDCs; others were more confined within an MDC; most affect a single DRG or pair of DRGs.

5/No explicit attempt was really made overall to rate the comparable effectiveness of the different systems. Rather, the alternative systems provided guidance in establishing new groupings.

The refined DRG system for pediatric cases ("PDRGs") proposes 70 to 80 additional groupings, and modifications for 52 other patient groupings. In addition, the new categories draw selectively on decision "trees" (or computers algorithms) that assign categories under either the SysteMetrics' or the PMC system. New groupings could be applied to not only children's hospitals, but to all pediatric hospital stays, and utilize existing data elements on the standard billing form with one exception--that of additional birthweight categories for neonates.

The change that adds data elements used to assign patients to DRGs relates to MDC 15, Newborns with Other Neonates with Conditions Originating in the Perinatal Period. It was found that birthweight alone explains 30% percent of the variance in length of stay among the neonatal patients in the MDC. Therefore, it was recommend that birthweight be required for every patient under 29 days of age for use in assignment of DRGs in this category. A second major adjustment was a separate grouping of Cystic Fibrosis (CF) patients in MDC 10, Endocrine, Nutrional, and Metabolic Diseases. Under the original DRG classification, CF occurs across many MDCs according to the patient's principal diagnosis. Presently, these patients are grouped together regardless of whether the diagnosis was principal or secondary.

Certain of the other adjustments were confined within an MDC, but affect a series of DRGs therein. For example, in MDC 8, Diseases of the Musculoskeletal System, surgical patients with bone infections and inflammations had resource use related more to the bone infection or inflammation than to the surgical procedure. Such patients were assigned to one of two new groups, one with, and one without comorbidities and complications.

The remaining changes can be categorized in several different ways because the problems are related to several phenomena. Certain specific pediatric diseases occur in sufficient volume with related, significantly different resource use to be singled out for separate DRGs. Examples of these DRGs include Lead Poisoning and Sickle Cell Crisis. More frequently, groups of diagnoses, rather than single diseases, have been separated. One example is using DRGs 27, 30 and 33 to separate Severe Head Trauma, age 0-17, from Non-Severe Head Trauma, age 0-17.

Payment/Impact Assessment

A final phase of research undertaken by HCFA, which is being conducted during the 1986 and 1987 calendar years, will apply detailed cost accounting data from a randomly selected sample of 12 children's hospitals to test the new PDRG classification system, and will conduct various cost analyses and simulations to test the PDRGs for use in prospective payment for children's hospitals. This effort will also utilize the stratified sample of teaching hospital cases from the Department's Graduate Medical Education (GME) study to analyze the effect of alternate costing methodologies on relative weight compression and cross subsidization. Given the small case size of the GME data base, redistributional impact analyses for teaching hospitals may not be fully valid, but should support subsequent revenue simulations using larger cost data bases.

Implications/Recommendations for Policy

At this time, PDRGs would appear to be sufficiently developed to anticipate possible payment reform. As simulations are conducted, final payment

recommendations--both legislative and regulatory--can develop. A number of crucial payment system design issues, however, need to be resolved. These are activities having especially important implications for individual State Medicaid programs undertaking payment reforms.

- Once the impact analysis is conducted and final revisions to the PDRGs are accomplished, HCFA will want to perform an impact analysis of the redistributional consequences of the proposed PDRGs and the additional hospital-specific features of a prospective payment system. If, for example, pediatric care is found to be highly subsidized by adult care in general hospitals, a specific adjustment may be required to set payment levels (weights) that will be fair to children's hospitals. Other hospital-specific adjustments, such as hospital teaching status, may also need to be modified.

- At that time, HCFA can develop regulations to pay under PDRGs for all hospitals currently under the Medicare prospective payment system. At the same time, HCFA can recommend to the Congress the revised PDRG system in excluded facilities for purposes of PPS.

- HCFA research studies on the feasibility of a PPS for children's hospitals have not focused on the most appropriate payment system for a more integrated delivery system of necessary care for severe pediatric conditions (e.g., certain congenital defects). While the revised PDRGs frequently assign groups on the basis of the severe underlying condition--and so characterize the most expensive cases

reasonably well--the payment of inpatient care separately from other types of care encourages unintegrated, and sometimes inappropriate and inefficient, care for severely ill children. Children's hospitals are more likely to treat these children. This issue deserves attention at a later date.

Psychiatric Hospitals and Distinct-Part Units

A system intended to create equitable per-case Medicare payment rates for presently excluded psychiatric units and hospitals must take account of several facts:

- the present organization of the system of psychiatric hospital care gives different psychiatric facilities very different roles and very different costs per admission;

- interfacility transfers are very common and appear to be used particularly to move patients from short-stay facilities to long-stay facilities;

- Medicare's coverage of psychiatric services is unlike its coverage of other medical services;

- Medicare admissions constitute only 10-15 percent of admissions to excluded facilities, and the majority of these admissions are under 65, disabled, and probably chronically mentally ill; and

- the factors that influence the cost of necessary psychiatric inpatient care, which must be included in any case classification system, have proven exceedingly difficult to identify and measure.

This section provides detailed information about these distinguishing features of the excluded psychiatric facilities and describes their policy implications. 6/

Analysis of the Delivery System

There are two important distinctive features of the current delivery of psychiatric inpatient services to Medicare beneficiaries when compared with other medical-surgical services: the organization of the system which delivers inpatient care and the volume and structure of services for which Medicare pays.

The Psychiatric Hospitalization System. Hospital-based psychiatric care is delivered in five kinds of settings:

1) General hospital beds which are not part of organized psychiatric units ("scatter beds", which are now paid under PPS). Length of stay for patients in these beds is the shortest of all five groups, frequency of

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6/ This section is based on a background paper "Setting National Per-Discharge Prices for Excluded Psychiatric Facilities: The Problem, The Service System, Classification Research and Policy Options," by Stephen F. Jencks, M.D., Constance Horgan, Sc.D., Howard H. Goldman, M.D., Ph.D., and Carl Taube, Ph.D. The paper was prepared under joint sponsorship of HCFA and the National Institute of Mental Health (NIMH) as a detailed summary of the findings, evidence and issues relevant to bringing excluded psychiatric facilities under prospective payment. This section as a result does not include detailed references.

psychotic diagnoses is lowest and frequency of neurotic and substance abuse diagnoses highest. In the psychiatric community, care rendered in these beds is thought to be more interim and less definitive. Admissions to these beds comprise about half of all alcohol, drug, and mental health admissions to all inpatient facilities, but the exact proportion for Medicare psychiatric admissions is not known. These beds can be under public, voluntary, or investor-owned auspices.

2) General hospital beds which are part of organized psychiatric units but which have not been excluded from payment under PPS (nonexcluded units, which are now paid under PPS). Although nonexcluded units tend to be smaller and to have shorter stays than excluded units, some could have met the exclusion criteria, but did not do so because they decided that inclusion under PPS would be fiscally sound. These beds also can be under public, voluntary, or investor-owned auspices.

3) General hospital beds which are part of organized psychiatric units and which have been excluded from payment under PPS ("excluded units", which are all paid under TEFRA). Many of these units, especially the larger units and those in voluntary and public urban hospitals, closely resemble freestanding psychiatric hospitals in patient characteristics and length of stay. Unlike the freestanding psychiatric hospitals, these large urban hospitals tend to care for a higher proportion of indigent patients. There are about 1,200 general hospital units, of which 831 were exempt in December 1985.

4) Beds in psychiatric hospitals which are owned either by investors or sponsored by voluntary boards of trustees (nonpublic hospitals, which are all paid under TEFRA). These facilities tend to have a very low proportion of patients who are unable to pay and to have lengths of stay which are intermediate between smaller general hospital units and State and county hospitals.

5) Beds in psychiatric hospitals operated by States or counties (public hospitals, which are all paid under TEFRA). These hospitals serve as a safety net for the psychiatric inpatient system; they usually are required by law to receive all patients, and accept the majority of those who cannot pay as well as a majority of patients who are involuntarily committed for care. They have a higher proportion of disabled and psychotic patients than other types of hospitals and the longest average stays. A total of 464 nonpublic and public psychiatric hospitals were Medicare participants in June 1985.

These different settings give care to patients with different needs and with markedly different lengths of stay and costs. The five categories comprise a continuum of increasing length of stay, increasing frequency of psychotic disorders, increasing frequency of civil and criminal commitment, and increasing frequency of permanent disability.

Differences between settings result both from initial triage of patients to particular hospitals and from transfers of patients between facilities, especially transfers from short-stay to long-stay facilities for patients who do not respond to treatment. As Chapter 2 noted, a psychiatric patient is two to three times as likely

as a medical-surgical patient to be transferred to another hospital on discharge from a general hospital. Thus, both community referral patterns and interhospital referral patterns support and reinforce the way in which psychiatric inpatient settings are differentiated.

One of the most important controversies in use of psychiatric hospitalization is whether the longer lengths of stays in some facilities reflect increased treatment needs of patients, higher quality care for patients whose conditions are similar across institutions, or simply less efficient care. Although there is little solid evidence to resolve this issue, there are some suggestive data: adjusting for patient differences in diagnosis and in other characteristics accounts for much, but by no means all of the difference in length of stay between government psychiatric hospitals and general hospitals. On the other hand, there are sharp differences in length of stay and cost across States; these differences are more likely than differences between hospitals to be attributable to differences in practice patterns.

An important feature of the organization of psychiatric hospital care is that individuals with diminished ability to pay are often treated in State and county hospitals while those who can pay have greater access to general hospitals and nongovernmental psychiatric hospitals. Thus, a system which reduced flexibility of payments and made some patients appear "unprofitable" would be implemented in a setting in which the practice of transfers is already well-established and in which exhaustion of insurance benefits is already a well-accepted reason for making such transfers.

A second important feature of the system of care is that Medicare patients comprise a much smaller part of the market for psychiatric facilities than for

medical-surgical facilities. While Medicare beneficiaries account for about 30 percent of admissions to general medical-surgical beds, they account for about 15 percent of admissions to psychiatric beds. Psychiatric facilities are therefore in a better position than medical-surgical facilities to decline to treat Medicare beneficiaries or to give up a portion of the Medicare market if the payment system appears unfavorable.

Medicare Eligibility and Coverage of Mental Health Services. Psychiatric services under Medicare differ in important ways from most other Medicare medical services and from health services to other populations:

- Who is Covered. The majority of beneficiaries in excluded psychiatric facilities are under 65, and it appears that they are overwhelmingly individuals who are eligible for Medicare because they are disabled by chronic psychiatric disorders. The elderly are a minority of Medicare beneficiaries in excluded facilities.

- What is Covered. Just as the service system for mental health is more complexly differentiated than that for medical-surgical care, so the Medicare benefit structure is different and more limited. There is a 190 day lifetime limit on Medicare coverage of services in psychiatric hospitals. This limit does not, however, currently apply to services in psychiatric units of general hospitals.

Medicare payment for psychiatric services furnished by physicians to outpatient visits is limited to $250 per year, with an effective copayment of 50 percent. This amounts to about 8 one-hour visits in a typical State.

Hospital outpatient department visits are also being limited by administrative procedures which require that care be curative in purpose rather than simply intended to maintain the beneficiary as an outpatient. Again, this is different from medical surgical care where the only requirement is that the care be medically necessary.

- How Much is Spent and How. The most recent complete data is from 1981, when Medicare expenditures for alcohol, drug, and mental health services were as follows:

Psychiatric Hospitals	$190,000,000
General Hospitals	$630,000,000
Psychiatrists and Psychologists	$115,000,000
Hospital Outpatient Departments	$45,000,000
Other Institutions (e.g., home health, skilled nursing)	$15,000,000
Total	$995,000,000

This was 2.4% of 1981 Medicare outlays ($41.3 billion) compared to 7-18 percent for psychiatric services in other representative insurance programs. This lower percentage is attributable to differences in beneficiary population as well as to differences in benefit structure. While 29.9 percent of total program

expenditures were on physician and hospital outpatient services, only 16.1 percent of alcohol, drug, and mental health expenditures were for physician and outpatient services.

The Performance of Classification Systems.

About 10 studies have been funded by HCFA, NIMH, and professional and hospital organizations to assess the feasibility of applying DRGs or a comparable system to determine national reimbursement rates which could replace TEFRA rates.

Performance of Available Systems. No matter what system is examined, neither current DRGs nor variations thereof explain much of the currently-observed variation in length of stay and cost for psychiatric hospitalizations. The current psychiatric DRGs have been examined using data from many sources and generally account for less than 10 percent of the variation currently observed in either length of stay or cost per admission. Refinements of the DRGs have also been studied, and though these do better in many circumstances, less than 15 percent of the variation is accounted for. One system, the Psychiatric Severity of Illness Index (PSOII), provides substantially better power in accounting for observed variation; unfortunately, PSOII depends heavily on "implicit" or subjective methods, uses actual treatment rendered as a variable, and has not been demonstrated to be reliable. Thus it is not, at least yet, a viable tool for determining payments for psychiatric hospitalization.

The performance of classification systems for psychiatric hospitalization is fairly similar to the performance of DRGs for nonsurgical conditions in general

hospitals. Recent research (using 1981 through 1983 MEDPAR data) has shown that while DRGs account for more than 30 percent of the variation in cost of surgical cases they account for less than 10 percent of the variation in cost of non-surgical cases. The poor performance of classification systems for psychiatric discharges does not, therefore, result from the fact that psychiatric diagnosis is imprecise; nor is the lack of relationship between diagnosis and treatment unique to psychiatry. The problem is that psychiatry uses so few surgical procedures that the overall performance of DRGs for psychiatric hospitals and psychiatric units is less equitable than the performance for medical-surgical hospitals, where surgical procedures are more common. It is not surprising, therefore, that efforts to improve the performance of psychiatric DRGs by using refined diagnostic categories have been disappointing and that further work with diagnosis does not appear to be a useful strategy for future work on psychiatric case classification.

Strategies for Improving Classification. One strategy for improving classification systems rests on treating the kind of intensive psychiatric treatment which is delivered in psychiatric units and psychiatric hospitals as a procedure akin to surgical procedures. When this is done, the explanatory power of the classification system rises sharply, though not to the level observed for surgical cases.

A second strategy rests on using mathematical models which predict length of stay or cost uniquely for each patient instead of classifying each patient into one of a relatively limited number of groups. This approach appears to produce more flexible systems which predict actual current variations in cost and length of stay more accurately, but it sacrifices some of the simplicity of the DRG model.

Finally, a classification system should be able to deal with the patients who do not respond to treatment and who are often transferred to longer-term facilities; the cost of these transferred patients to the receiving facilities are typically several times the average for patients in the same DRG. Although transfers could be recognized by adjusting the classification system to pay more for transferred patients, this strategy would not reward the hospital which retains such patients instead of transferring them. A more effective approach may be hospital-specific payment levels based on the ratio of the number of patients transferred out by the hospital to the number of patients received in transfer.

Payment System Alternatives

Some difficulties with implementing existing DRGs or their modifications could be reduced by adjustments to the PPS payment system.

Outlier Policy. The most important of these adjustments would be to recognize short-stay outliers and a larger number of long-stay outliers in addition to current recognition of cost outliers. The logic of this approach is twofold:

- Paying a larger number of cases as outliers is effectively a form of risk sharing which reduces the risk that payments to a hospital will be unfair.

- Recognizing short-stay outliers creates sufficient savings to fund a larger number of long-stay outliers. A short-stay outlier system also recognizes that a significant group of hospitals has developed an extremely short-stay strategy for managing mental disorder which is qualitatively different from the usual form of hospitalization.

Short-stay outliers would be paid in a manner similar to long-stay--that is, a specific reduction would be made from the usual per case payment for each day by which the length of stay was shorter than a threshold.

Capitation. Capitating psychiatric services may be an especially important approach for the disabled portion of the Medicare beneficiary population. Although these individuals have no higher cost per admission than the nondisabled, they are admitted far more often. This is a situation in which the incentives of capitation are particularly appropriate. While the feasibility of such capitation has not been fully explored, it could be examined in the context of broader proposals for capitation.

Lifetime Limits. If Medicare moves away from day-counting to per case payment, it may be useful to eliminate the 190-day lifetime limit on psychiatric inpatient services in psychiatric hospitals. Otherwise that limit may artificially channel patients to certain kinds of facilities, resulting in reduced efficiency without reduced Medicare costs. To some extent Peer Review Organization review activities might be used to counter inappropriate referral patterns, though such a policy would require careful consideration prior to development and implementation.

State-Level Variation. The substantial differences in the organization of psychiatric inpatient services between States may make State-level adjustments in

PPS rates advisable.

Data to test a number of these classification and payment options were not available for this report but will become available in the next two years.

Impact Assessment of Implementation

Simulations of the payment impact of either the existing PPS or a PPS based on refinements of the DRG system indicate that there would be substantially larger payments for some hospitals and substantially smaller payments for others. The shifts involved are in many cases substantial--more than 10 percent of Medicare payments in a majority of cases and more than 25 percent in a significant minority. It is not possible to predict confidently how hospitals would respond to such shifts. The only real data on the response of suppliers of psychiatric services to changes in payment are evidence that the volume of psychiatric admissions increased in Maryland under a prospective system and that a cap on length of stay results in more transfers to state hospitals under Medicaid.

The shifts in payment for psychiatric services correlate strongly with the shifts which will occur for other services in the same hospitals when PPS is fully implemented--that is, hospitals whose medical-surgical services tend to gain under PPS also tend to gain in their psychiatric services while the reverse is also true. But the correlation is far from perfect--knowing the effects of PPS on a hospital's medical-surgical services permits an explanation of 25 percent-50 percent of the impact on psychiatric services. The other 50-75 percent of the impact is not predicted.

Implications/Recommendations for Policy

These findings have direct policy implications for the feasibility and advisability of bringing presently excluded psychiatric facilities into PPS:

- Implementing any of the prospective payments systems so far tested could result in substantial reallocation of resources among psychiatric inpatient facilities.

- The high degree of differentiation in the system of psychiatric inpatient care suggests that some of the reallocation could result from failure to fully recognize differences in patient needs between facilities.

- The current high rates of transfer between facilities and the apparent high sensitivity of the system to ability to pay suggests that if hospitals perceived Medicare's payments to be inequitable, hospitals may have a financial incentive to discriminate against Medicare beneficiaries.

- Accordingly, bringing excluded psychiatric facilities under any currently available version of PPS appears to be premature.

- The analysis of classification and payment options presented above, however, suggests several strategies which should be tested with HCFA data which will become available over the next two years. As a result, NIMH in conjunction with HCFA and the psychiatric community, has already initiated a (roughly) million dollar effort to refine a case-mix

classification system and develop payment options for inpatient psychiatric services under Medicare. Adjunct research and analytic studies by the psychiatric and hospital community have been encouraged by the Department as well.

- Followup research and policy development activities in both public and private sectors should allow the Secretary to report to the Congress on these efforts in the next 2 to 3 years. Findings to date and a Departmental commitment to further extend its empirical capabilities in order to pay on a prospective basis may make a recommendation to eventually include these excluded facilities under PPS both feasible and advisable.

Rehabilitation Hospitals and Distinct-Part Units

As pointed out in Chapter 2, the Medicare program is the largest single payer of care in this Nation's rehabilitation facilities. As a result, any changes in Medicare payment policy can be expected to have a pronounced effect upon these facilities and their subsequent provision of care. Rehabilitation facilities fall into two general categories under Medicare payment rules: first, hospitals, either independent or self-contained within a larger medical center, and second, defined (distinct) units of other institutions.

Analysis of the Delivery System

Care provided in rehabilitation facilities emphasizes the treatment of functional limitations and disability, whereas acute medical services are primarily concerned with pathology and impairment. Discussants of rehabilitative care are careful to distinguish among pathology, impairment, functional limitation, and disability (Nagi, 1964). Pathology is any abnormal change in anatomy or physiology resulting from disease or trauma. Impairment is the physiological, anatomical, or mental abnormality, resulting from an active or past pathology, congenital deformity, or long period of muscle or organ disuse. Significant impairments may result in functional limitations of organs, systems, or the body as a whole. A disability occurs when a functional limitation interferes with a person's ability to perform the role and tasks defined by his socioeconomic environment. Rehabilitative care differs from acute care by its focus on the restoration of lost functional capacity and the elimination of disabilities.7/

A prospective payment system for rehabilitation care must recognize the distinctive characteristics of these services. These distinctive characteristics are reflected in at least three different patterns of care:

- referral sources,
- admission procedures, and
- interrupted rehabilitative care.

7/The World Health Organization (WHO) uses the terms "disability" and "handicap" in place of functional limitations and disability though their classification of health conditions is consistent with Nagi (1964). WHO defines "disability" as a limitation "reflecting the consequences of impairment in terms of functional performance and activity by an individual." According to WHO, "handicaps" refer to "the disadvantages experienced by an individual as a result of impairments and disabilities; handicaps thus reflect interaction with the adaption to the individual's surrounding" (WHO, 1980).

Referral Sources. Whereas acute care hospitals admit most of their patients directly from the community, most patients admitted to rehabilitation hospitals and units are referred from other hospitals. Chapter 2 noted that about two-thirds of the 1980 referrals to independent rehabilitation hospitals sampled came from other hospitals, while another 10.4 percent were from within the hospital (Mullner et al., 1983). For self-contained rehabilitation hospitals and defined units, primary referral sources were, respectively, other hospitals within the larger medical center and other sections of the hospital of which they formed a part. Referrals from home accounted for only 9.7 percent of all admissions to the reporting facilities, while nursing home referrals accounted for only 2.0 percent of admissions.

Admission Procedures. A preadmission screening is normally conducted to determine whether patients are likely to benefit from a comprehensive medical rehabilitation program or at least warrant an extensive inpatient assessment. This screening consists of a review of the individual's condition and past medical record.

For rehabilitation patients, the first 3 to 10 days after admission are typically devoted to an extensive evaluation of the patient's physical and mental status, and their potential to benefit from an intensive inpatient program. If this multidisciplinary evaluation indicates that the patient has little or no chance of benefiting, then the patient is discharged. For a patient with rehabilitative potential, the treatment team designs a care plan, which is updated periodically based on the patient's progress. The decision to discharge depends on the treatment team's determination of whether the patient will continue to benefit from the inpatient services (DHHS, 1982).

Interrupted Rehabilitative Care. Rehabilitative inpatient care is sometimes interrupted by conditions requiring acute care, either a recurrence of the underlying problem creating the disability being treated or a new condition or complication. Acute care may be provided in the same institution if the rehabilitation is being given in a defined unit of an acute care hospital, or the patient may require transfer to an acute care hospital.

Systems Issues. Prospective payment policies for rehabilitation care must further recognize systems level issues that lead--at least in part--from distinctive patterns of individual rehabilitative services. These include:

- linkages between rehabilitative and acute-care facilities, and
- the potential for alternative sources of rehabilitative care.

Almost 80 percent of rehabilitation patients enter these facilities after a stay in an acute care hospital. Another 12 percent of rehabilitation stays go back to the acute hospital as part of an interrupted stay or as a disposition on discharge from rehabilitation. Upon discharge, the patient may go to a nursing home or require outpatient or home health care. In addition, skilled nursing facilities (SNFs), long-term hospitals, home health care agencies and outpatient clinics offer qualitatively similar rehabilitative care.

Because rehabilitation generally occurs after acute care, decisions made in the acute setting affect the timing and the very fact of rehabilitation. The timing of a patient's referral for rehabilitation will affect the overall cost of

rehabilitative services. Post-acute patients, for example, incur lower charges on average. Conversely, some rehabilitation patients (e.g., spinal cord injuries) may require several separate admissions/referrals or may become acutely ill from complication or exacerbations and need acute care again. Stroke, brain injury, and hip fracture patients are infrequently re-admitted, whereas many spinal cord injury and amputation patients are returnees, and represent almost a quarter of the total. Readmissions generally incur lower charges (except hip fractures) and shorter lengths of stay (except hip fractures and back disorders).

The availability of rehabilitative services from other Medicare covered providers--skilled nursing facilities, long-term hospitals, home health care agencies, and outpatient clinics--poses a second systems issue; namely, that of distinguishing the difference in care received in different settings. Preliminary analysis of Medicare (PATBILL) data indicates that rehabilitation facilities are highly skewed geographically. Some functionally limited individuals, especially those who reside in areas without rehabilitation facilities, are now receiving rehabilitative care for comparable conditions from alternative providers, such as skilled nursing facilities. This raises questions concerning the efficacy of care provided by these different providers. Do rehabilitation facilities provide different rehabilitative services from those provided by acute care hospitals, skilled nursing facilities, long-term hospitals, home health care agencies, or outpatient clinics? If so, are these services more efficacious? To date, there have been few, well-grounded cost-benefit or cost-effectiveness studies of rehabilitation health services. Furthermore, there are no conclusive studies comparing the cost-effectiveness of treatment in rehabilitation facilities to rehabilitative care offered by other providers.

To some degree, the specifications of the Medicare benefit package (see Chapter 2), in combination with incentives provided by the different reimbursement schemes for different delivery settings that Medicare currently has in place, will determine the patterns of utilization across hospitals, SNFs, home health care, and so on for patients in need of rehabilitative care. Whether the current mix of Medicare benefits and incentives over various delivery settings promotes the most efficient utilization of resources, however, is far from clear. For example, the Medicare benefit package may foster different perceptions of a needed episode of care by patients, providers, and the Medicare program. For an inpatient provider, an episode of care begins with the acceptance of a patient for care and terminates with the patient's discharge.

For an acute care hospital, then, the transfer of a patient to a rehabilitation facility ends an episode. The patient's episode, though, actually continues in another facility. Medicare defines an episode of care under Part A not in terms of an admission and discharge, but rather as the extent of Medicare's financial responsibility for the services delivered to its beneficiaries. Episodes or "benefit periods" begin when a patient enters an institution providing hospital or certified skilled nursing care and ends when the person has not been an inpatient for 60 consecutive days.

Under PPS for acute-stay hospitals, these differences in defining episodes of care may offer financial incentives for inefficient resource utilization. The PPS encourages acute care hospitals to control costs and limit length of stay. However, these patients must be discharged or transferred at appropriate times to post-acute care settings (including rehabilitation), where payment incentives promote cost-effective care as well.

Developing a Classification System

Since October 1984, HCFA[8/] has examined the question of resource utilization in rehabilitation facilities as a foundation for development of a classification and payment system for this specialty class. Consistent with the goals and criteria established in Chapter 2, this work first addressed the effects of patient (case-level) factors or "variables." Secondly, it explored the extent to which costs varied across institutions and why. For example, do freestanding hospitals cost more to provide similar services than do units of acute hospitals? Is rural care cheaper than care in urban areas for these patients? To what extent is such variation attributable to practice styles versus cost of living differences?

Data for these analyses came from two principal sources: 1) HCFA records, especially the stay (PATBILL) files for 1984 and the providers of services (POS) files, and 2) information collected by a national survey of rehabilitation facilities.

This survey included abstracting a random sample of approximately 80 medical records from each of 100 rehabilitation facilities, billing records on the patient stays corresponding to the abstracted records, and facility information provided by telephone interviews with the facility or unit administrator.

8/ Under a Cooperative Agreement (No. 15-C-98489/0-01) with the HCFA Research Center at the Rand Corporation/University of California at Los Angeles School of Public Health and the Medical College of Wisconsin.

These two sources of data complemented each other. The HCFA data provided information on HCFA beneficiaries treated in excluded rehabilitation facilities. It covered all such facilities and potentially all patients covered under Medicare. By contrast, the sample survey data covered fewer facilities but included all types of patients and more types of information to provide a richer data base. The information items collected were those considered by rehabilitation professionals to be most germane. These included functional status and indicators of levels of social support (e.g., marital status) in addition to diagnostic measure descriptors. However, the quality of the medical records from which this information was abstracted limited the detail of analyzable information. To assure comparability, the data had to be collected at the lowest level commonly available. Nonetheless, this data set provided the best source of information on functional status, specific models of therapy and various measures for development of a treatment requirement of "severity" scale. Subsequent analysis of patient and facility variables were taken directly from those data sets with only modest transformations.

For classification purposes, the long list of diagnoses was reduced to 11 basic diagnostic categories modeled after those developed by Dr. John Melvin of the Medical College of Wisconsin for his diagnosis scheme and closely adhering to the list of accepted categories for exclusion as a rehabilitation facility. (A category was created for burns but rarely used in analysis because it contained so few cases.) The distribution of cases from the survey and HCFA data across the diagnostic categories is shown in Table 3-2 for freestanding hospitals and units. The relative frequency of diagnostic categories in the survey file for patients 65 years and older generally corresponded to that in the HCFA file. Three conditions

--stroke, hip fractures, and arthritis--accounts for approximately two-thirds of rehabilitative services for the Medicare elderly.

Further subdivisions of several categories were done initially to distinguish traumatic and nontraumatic injuries. The assignment of diagnoses to these major categories was done on the basis of clinical judgment. In addition, the functional status list was subdivided into two areas. One addressed items usually found in an Index of Activities of Daily Living (ADL) like that developed by Katz (1963). The other measure concerned mobility, such as horizontal ambulation and vertical mobility (stair climbing). Paralysis modifiers were organized into an ordinal scale on the basis of increasing expected disability, from no paralyses to quadriplegia. Finally, three measures of resource utilization were available: LOS, total charges, and average daily charge.

In order to identify the variables most associated with variations in resource consumption, the relationships between individual characteristics and LOS were first examined through a series of univariate analyses. Secondly, in order to determine how much of the variation in per-case charges can be explained by various patient and facility characteristics, a series of multiple regression equations were estimated. The following discussion reviews the results.

Table 3-2

Percentages of Patients within Diagnostic Categories
In Freestanding Hospitals and Units as Found in Survey
Data and the HCFA 20-Percent Sample

		Hospitals			Units		
		HCFA File	Survey All	Survey 65+	HCFA File	Survey All	Survey 65+
	(N)	(5567)	(2083)	(1143)	(2966)	(5528)	(3201)
1	Stroke	38	33	40	48	43	54
2	Brain injury	2	7	3	4	8	4
3	SCI	5	10	3	4	9	3
4	Neurologic	4	6	3	4	5	4
5	Hip fractures	9	8	13	6	5	8
6	Back disorders[1/]	4	6	4	4	4	3
7	Arthritis	14	9	13	6	4	5
8	Amputation	7	5	6	3	4	4
9	Cardiopulmonary[1/]	4	3	4	3	2	2
10	Other	15	14	12	18	15	14

[1/] These categories are not included in the current HCFA list of coditions under the 75 percent rule (see Chapter 2).

Univariate Analyses. Figure 3-1 shows the distribution of mean LOS by diagnostic category. If the few burn cases are dismissed, spinal cord injury (SCI) patients have the longest lengths of stay followed closely by brain injury cases. The variation in most categories is considerable. The longer LOS of SCI patients is more evident when those patients admitted to rehabilitation for the first time are isolated. The majority of rehabilitative readmissions falls in the SCI category and are largely due to complications such as urinary tract infections, or part of a planned course of rehabilitation. The readmissions tend to be much shorter. The mean for a first SCI admission was 49.3 days compared to 29.5 days for a readmission.

Other analyses performed found that LOS increases with surgery, the level of dependency and reduced mobility on admission (though the relationships are not linear or "constant"), and the increased level of paralysis (especially in regard to paraplegia and quadriplegia).

LOS was also found to vary with both admission source and disposition on discharge. Most patients (78 percent) came to rehabilitation from an acute hospital. The difference in LOS in admissions from the same or different hospitals paralleled differences between units and freestanding rehabilitation hospitals, where the latter had longer LOS. At discharge most patients went home (88 percent). In some charts there was a specific plan for formal supportive services after discharge. The LOS was substantially affected by discharge location in only three anticipated instances. Patients who were either transferred to an acute hospital, died, or left against medical advice had shorter lengths of stay.

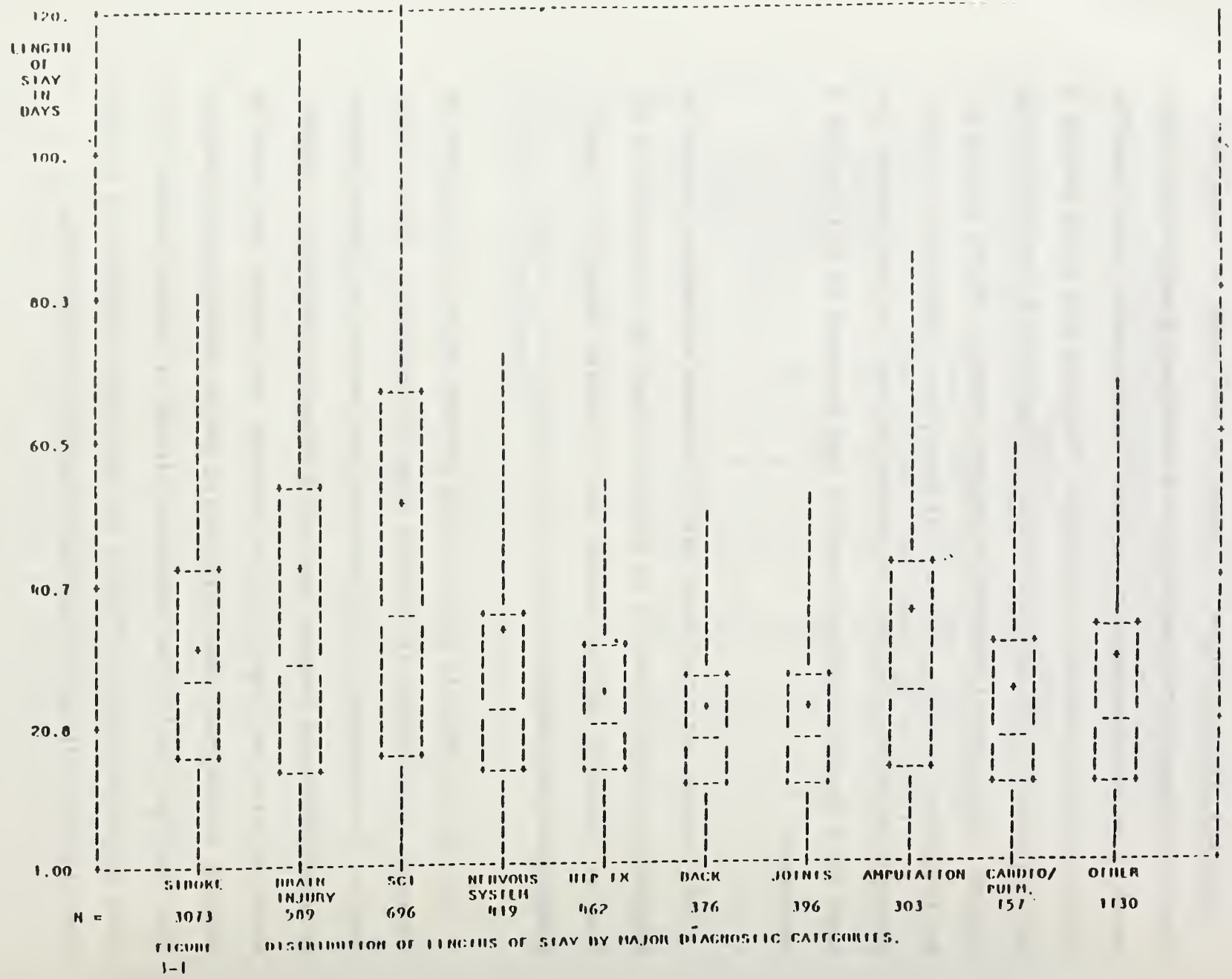

FIGURE 3-1 DISTRIBUTION OF LENGTHS OF STAY BY MAJOR DIAGNOSTIC CATEGORIES.

Note: boxplots display the range of cases between the 25th and 75th percentiles within the box; the median is shown by a line, and the mean by a +. The tails to the 5th and the 95th percentiles are shown as vertical lines.

Regression Results. Several different regression models, using a sample of over 5,000 patients, were constructed to judge the importance of different groups of variables in explaining charges.[9/] The first model was based on the current system of DRGs used to reimburse acute hospital care. This specification included the 10 diagnostic groups listed in Figure 3-2 (burns excluded), the patient's age, and whether surgery was performed during rehabilitative care. It further included two payment system adjustment factors: the wage index, and whether the patient was hospitalized in a teaching facility. Teaching facilities were defined as those with a residency program in physiatry.

These DRG-like specifications explained only 12 percent of the observed variance. Compared with the group of stroke patients, most of the other diagnostic groups were charged less for their stays, with the back disorder and arthritis groups being the least expensive. Spinal cord injuries, in contrast, were charged 25 percent more. Controlling for diagnosis, post-operative patients and younger patients incurred lower charges. Training facilities charged more and facilities with wage costs 100 percent above the average charge almost 50 percent more.

The second model consisted of a complete set of the patient descriptors at the time of admission to the rehabilitation facility available from the abstract record, but did not include any information on the facility. In addition to diagnosis and age, the independent variables included whether the patient had surgery before

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[9/] The dependent variable was the natural logarithm of total stay charges.

entering rehabilitation, level of functioning at admission, emotional status at admission, special problems (decubiti, infection, contracture, catheter, or noncatheterized neurogenic bladder), where the patient was admitted from, and whether the patient came from outside the facility SMSA and/or from a rural area.

For this model, the explained variance increased to 27 percent. The functional status variables; the paralysis score; the scores for cognition, communication, and emotional stability; and the presence of special problems were significant predictors of charges. These results support the belief that data elements beyond those used in the current PPS system are important in rehabilitation care. The addition of these variables eliminated many of the differences between diagnostic groups, though it substantially raised the explanatory power. In other words, while classifying patients by diagnosis captures some of the differences in charges attributable to functional status and other important "rehabilitation" variables, diagnosis in and of itself does not account for variation in costs across rehabilitation facilities.

Where the patient was admitted from also affected charges. Patients who are admitted from the same hospital's acute units or from home are charged less than patients who are transferred from another acute hospital. This may be the result of selection in the channeling of patients within a hospital or to a different hospital.

A third model introduced factors describing the course of the patient's rehabilitation stay, such as patient's functional progress and discharge status. This allowed for another large increase in explanatory power--to 34 percent. Generally, the model found that the more the patient's functioning improves, the more the

stay costs. On the other hand, charges did not increase with improvements in mobility. Interrupted stays incurred 43 percent higher charges, while stays cut short by discharge to an acute hospital or by death or by the patient's own decision to leave were billed 30- to -50 percent less.

A fourth model added facility characteristics, and yielded more explanatory power than the specificiations limited to patient characteristics. Facility variables correlated significantly with charges. Teaching facilities incurred the highest charges. Freestanding hospitals show higher variations in charges and on average charge more per stay than units; their daily average charges are slightly lower and lengths of stay longer. Whether this finding reflects unmeasured differences in the freestanding case mix (i.e., more resource intensive patients) or different treatment patterns is unclear. In contrast, hospitals that are part of a medical complex charged less and have shorter lengths of stay than either units or freestandings. There is no obvious explanation for this observation. An investigation of referral patterns from acute hospitals to the different types of rehabilitation facilitation treatment might explain the differences observed in length of stay and charges across facility types and by patient origin.

Lastly, there was substantial regional variation (up to 30 percent) in rehabilitation charges. Two of the four HCFA-designated regions with higher total charges were actually less expensive per day, but had substantially longer lengths of stay on average. On the other hand, the bills in Region 9 run over 30 percent higher solely because of higher daily charges.

It should be noted that when these models were estimated for a subset of Medicare-only patients (64 percent of the larger sample), the results generally

mirrored those of the full population. Age had no significant effect in this older group. The ADL and ability to communicate at admission measures had little or no effect on charges, but functional progress still had a major effect.

Implications/Recommendations For Policy

Work undertaken over the last two years has added substantially to HCFA's knowledge base about the existing delivery system for rehabilitative care, and the feasibility of developing a classification system for it. Findings indicate significant differences in average length of stay and charges both across geographic regions and facility types. Freestanding hospitals are marked by longer stays and lower per diem charges than distinct-part units in hospitals. The vast majority of rehabilitation patients are received from acute-care hospitals, and three conditions--stroke, hip fracture, and arthritis--account for approximately two-thirds of rehabilitation services for the elderly.

The analyses presented also suggests that it is indeed possible to construct a payment system on a per-case basis, based on research in which patient-level characteristics can be used to predict resource consumption for rehabilitative care. The amount of explained variance for total charges available from patient's characteristics is impressive.

Nevertheless, these findings contain some important caveats. As originally argued by rehabilitative experts as well as by the Department in the December 1982 Report to Congress: Hospital Prospective Payment for Medicare, diagnosis proved less important than functional descriptions in explaining observed variations. The patient status measures, however, were crude-

-"lowest common denominator"--measures which could be gleaned from diverse and uneven record-keeping practices. It is also important to recognize that most of these analyses used charges, not costs.

The implication of this research on classification systems thus far is that additional effort would be needed before the next major steps are undertaken: namely, the development and testing of technically feasible options to develop a payment system along the lines of the presently implemented DRG system for acute-care hospitals. A payment system for rehabilitative care could be case-based, especially since a substantial part of the case load is for acute treatment needs. Analysis of LOS for high volume diagnostic categories reveals that a significant number of cases in these facilities can be treated in relatively short, well-defined, and replicable periods of time. Additional functional status measures would probably be necessary, however, and these measures do not presently appear on standard discharge data bases.

The second major and perhaps more important implication--at least in the near term--stems from the close linkage between rehabilitative care and the acute hospital. Because rehabilitation is so closely linked with post-hospital care, the development of a payment system for rehabilitation services in advance of additional study of the "interface" of these services with the broader health care system would be premature. Without a full understanding of the patient flows between acute care, rehabilitation, and other forms of post-hospital care, a separate PPS for rehabilitation care could easily create perverse incentives for inefficient patient transfers. Instead, the more cost-effective solution may stem

from developing an episode of care approach that would provide payment across acute hospital and rehabilitation settings. Such an arrangement could clearly change the relationship between the acute hospital and the rehabilitation facility. It could also change the flow of patients.

At present, little is known concerning the factors associated with a decision to transfer a patient to rehabilitation. On the surface under the current PPS system, the hospital has an incentive to move the patient quickly. There is no disincentive to use a rehabilitation facility as opposed to a nursing home, except perhaps the costs and inconvenience produced by limited availability of rehabilitative beds. Under an episode of care approach, the hospital could have strong incentives to opt for the less expensive care, perhaps represented by the nursing home.

Any system of payment focusing on the episode of care across acute and post-acute settings will thus require more information about the linked delivery system as it now exists, as well as the relative efficacy of different post-acute hospital treatments for defined patient groups. At that point, payment options could be developed and tested with impact analyses and also demonstrations. At the same time, concurrent research and demonstration efforts within the Department are beginning to move Medicare to capitated systems of care. Under capitation, both acute and rehabilitation would become part of a large payment package. Research on the development of payment options will need to be consistent with and be integrated at each point of progress into existing capitation opportunities and future initiatives that follow from the Administration's plan for overall Medicare reform.

Strategies focusing on payment for the episode of care across acute and post-acute settings and strategies to develop capitated approaches may both require further research activities. For the immediate future, the Department continues to examine the possibility of developing a transitional PPS for rehabilitation care. Using Medicare hospital stay files, such a system would consider: 1) relative weights for the HCFA diagnostic conditions--e.g., stroke, hip fracture, arthritis, 2) modified outlier boundaries to protect facilities from unnecessary risk, and 3) additional "cushions" that would further modify the level of an individual facility's risk under this system. These cushions or modifiers might include, for example, teaching status and type of facility. At the same time, alternatives for developing a PPS based on functional status measures--in concert with the rehabilitation field--will be pursued.

Long-Term Hospitals

Long-term or "chronic-disease" hospitals are the least understood of the excluded hospital types. Virtually all relevant research has been done in Massachusetts, and there, hospitals licensed as long-term vary significantly from one another in the patients they serve and the services they provide (Massachusetts Department of Public Health, 1983). One study found what was termed different "styles" of care in these facilities (Bishop, 1976). Similarly, there are States where long-term hospitals are not recognized as such--where similar types of patients are necessarily being treated in other kinds of facilities.

Anecedotal evidence suggests that the long-term hospital patient may be of any age. Although older people have accounted for most of the long-term hospital case load, increasing numbers of younger people with chronic conditions, such as muscular dystrophy and spinal cord injury, are also patients in these facilities. The reason for long-term hospital admission may be multiple diagnoses or a single catastrophic diagnosis; these patients can be severely impaired, requiring intensive nursing and/or technological support. Although they are generally treated less aggressively than acute care patients, physician involvement is frequent--to monitor medication and ongoing treatment or to treat acute medical episodes. The goal of long-term hospital care is more often to maintain than to cure. Some percentage of these hospital patients, however, are discharged to facilities providing lower levels of care, or home.

Long-term hospitals, too, have been profiled only anecdotally, but it is generally believed that these hospitals look much like acute care hospitals, except that they do not provide surgical or maternity care, or the most sophisticated diagnostic testing. Long-term hospital patients may require ventilators and other "high" technologies. They may also be furnished with simple assistive devices, such as adapted eating utensils. Long-term hospitals are hospitals, but because their patients have chronic conditions and long stays, they are also residential facilities. Some long-term hospitals, then, have developed a social as well as medical aspect.

Systems Issues. The current long-term hospital system is poorly defined. It is by no means clear that the 92 excluded hospitals represent a distinguishable element of the health care system. First, they are located in only about half the states; it would seem that patients needing the kind of care provided in these hospitals are treated in the other states as well. Second, rehabilitation hospitals, which constitute a further excluded hospital class, face more rigorous exception criteria than do these hospitals. It is, therefore, possible that hospitals providing substantial levels of rehabilitation services but not meeting all of HCFA's standards for rehabilitation hospitals were excluded as long-term hospitals instead. Thirdly, those hospitals are interstitial facilities; that is, they deliver care sometimes provided in acute care hospitals and, less frequently, in skilled nursing facilities. Although long-term hospitals ideally provide a distinct kind of care--intensive medical and nursing services for long periods of time--the excluded long-term hospitals may be providing whatever is necessary to fill gaps in the local continuum of care. A related point is that State policy may exert considerable influence on what kind of care is provided in these hospitals. Licensure and Medicaid payment policies may edge services into or out of long-term hospitals.

Because long-term hospitals have been such a poorly defined and largely unstudied sector of the health care system, any patient-level research to develop a case-mix classification and subsequent pricing system must be preceded by an understanding of the characteristics of hospitals currently excluded under this designation, as well as of hospitals that might potentially be excluded. Without this preliminary aspect of research, if the pool of these excluded hospitals does not represent those facilities treating chronic-disease patients, any pricing system based on this

excluded class data will be an artifact of classification--not a calculation of real resources used. The distribution of funds could be artificially high or low depending on a facility's exclusion status. Such a distortion could prolong or exacerbate any existing inappropriate placement, including skimming of chronic-disease patients or of other kinds of patients in those hospitals. A less clearly or fairly defined patient or facility classification system may also be perceived as arbitrary and less than legitimate.

For these reasons, HCFA[10/] has undertaken research pertaining to long-term hospitals in three areas over the last 2 years:

- an examination of the characteristics of hospitals that are currently excluded under this designation, and of hospitals that might potentially be excluded under this designation;

- an initial inquiry into the role of those hospitals as a component in the continuum of care between acute care hospitals and skilled nursing facilities, as a general first step in developing a classification system for patients in these facilities, and

- a preliminary financial impact on these hospitals and on the Medicare Trust Fund of bringing these hospitals under PPS versus letting them remain under TEFRA.

10/Under a Cooperative Agreement No. 99-C-98526/1-02 with the HCFA Research Center Consortium at Boston University and Brandeis University in Massachusetts.

This research is reported below, and implications for payment options for this class of hospitals are subsequently discussed. Data for these analyses are based on four sources of information:

- The AHA 1983 Annual Survey. Of the hospitals on the HCFA excluded list, over 90 percent responded to the AHA survey.

- A primary data collection effort that involved discussions with administrators from a sample of 25 hospitals on the HCFA excluded list. Hospitals were chosen according to several criteria: State, bed size, ownership, specialization, such as cancer and chest hospitals, as well as case mix.

- From the 28 hospitals selected above, additional discussions were held with the directors of nursing in eight facilities.

- HCFA stay files for 1984 and the Provider of Services files.

Hospital Characteristics. The first finding about these hospitals is that perhaps a quarter to a third of the hospitals excluded under the long-term designation do not primarily provide services for chronic-disease patients. Many, in fact, self-identify as other types of institutions. Twenty-two of these hospitals identified themselves as rehabilitation hospitals, eight as psychiatric hospitals, and three as children's hospitals (see Table 3-3). Under the 1983 Social Security Amendment legislation and corresponding regulatory process, hospitals with mean stays of 25 days or longer automatically are excluded under the long-term

designation regardless of the mix of services or identification of institutional mission.

There were 33 hospitals that both identified themselves as chronic care hospitals and appear on the HCFA list. These institutions, perhaps, are most representative of those primarily providing chronic-disease hospital services. Perhaps of most interest is the very long average LOS of patients in these institutions. With one exception, all average LOSs are over 60 days and, with three exceptions, all are over 100 days. (This group is discussed in greater detail below.) Most of the 22 rehabilitation hospitals on the HCFA list have much shorter average LOSs. Fourteen have average LOS under 60 days and 18 have average LOS under 100 days. There is probably no clear differentiation between certain types of rehabilitative facilities and long-term hospitals. The differentiation does seem clearer in the case of psychiatric and children's hospitals, though because these eight psychiatric and three children's hospitals had average lengths of stay greater than 25 days, they were placed under the long-term category of exclusions.

The 28 remaining hospitals on the HCFA exclusion list are characterized by a mixture of bed types. Many have a large percentage of psychiatric beds and some a large percentage of rehabilitation beds. Some of these hospitals are institutions with a large number of nursing home beds. For example, one hospital examined houses a small number of acute-care beds available for patients routinely cared for in SNF and intermediate care facility (ICF)-level beds. The acute-care beds are exempted under PPS. The State licenses beds in this facility as chronic-disease hospital beds, though the administrator conceded that these beds are virtually indistinguishable from the SNF and ICF-level Medicaid beds except that they are

covered under neither program. For many patients in this hospital, according to the administrator, a chronic-disease hospital bed is where a patient finds oneself when Medicare benefits are depleted and the "spend-down" limit for Medicaid eligibility has not yet been reached.

Only a small number of all long-term hospitals reported sources of revenue. Of those that did, five hospitals had under 1 percent Medicare days, three had 1 percent - 5 percent Medicare days and four had 5 percent - 10 percent Medicare days. One had 14 percent, one had 22 percent, and one had 47 percent Medicare days (though only 3,127 days total). To the extent this is a representative sample, Medicare patients clearly do not comprise a significant part of the case load in most of these excluded hospitals. In terms of Medicaid payments, revenues to these facilities are largely unknown, again because of the lack of systematic sources of information on Medicaid patients. Anecdotal figures and estimates of Medicaid revenues in some types of these hospitals in some states, however, were substantial--as high as 97%.

Lastly, there were 25 hospitals that were not on the exclusion list, but have either self-identified to the AHA as chronic care hospitals or have chronic care beds. Seven of these had mostly acute-care beds and a short average LOS, such that they would not qualify for the HCFA exclusion. The remaining 18 all had average LOSs greater than 60 days and 11 had average LOSs greater than 100 days. Though several of these were institutions with just chronic care beds, most also had a disproportionate number of nursing home beds. Possibly, those 18 hospitals could qualify for an exclusion at some future point.

Table 3-3

Hospitals Excluded as Long-Term

Type of Care Primarily Provided[1]	
Chronic care	33
Rehabilitation	22
Psychiatric	8
Other Specialty Hospitals	13
Tuberculosis and Respiratory Disease	6
Children's	3
General Medical/Surgical	5
Other	4
	94[2]

1/As self-identified to the AHA's Annual Survey.

2/The totals of HCFA excluded hospitals do not correspond with total number of hospitals in this table because not all hospitals responded to the AHA survey (1983).

Chronic-Care Hospitals. The emergent picture from the research and analysis indicates that these hospitals are themselves a diverse, rather anomalous class. They are not acute-care hospitals nor are they nursing homes; neither do they particularly resemble one another. What they would appear to share is a convergence of purposes: providing high levels of care for long periods of time. As suspected, they have grown up in the interstices of acute, rehabilitation, and nursing home care. Their diversity results from the fact that the role they fill varies with individual State regulatory and financing policies, as well as the surrounding configuration of acute, rehabilitation, and nursing home beds.

More specifically, there are several commonalities across this group:

- The Provision of Extended Care. This is suggested by the very long average LOS in most of the institutions identifying themselves as chronic care facilities. Some facilities are highly specialized, providing care for cancer or chest patients alone. Others treat a variety of diagnoses and combinations of diagnoses: cardiovascular disease, stroke, spinal cord injury, head injury, respiratory illness, and multiple sclerosis, among others. Some facilities provide care to terminal patients specifically, and, while a small percentage of chronic-care hospital patients return home or transfer to nursing homes, the conditions of a considerable proportion do not improve.

- The Provision of Hospital Level Care. Services provided by most of these hospitals in-house include rehabilitation, long-term skilled nursing, dental services, electrocardiography, pediatric services, occupational, physical, recreational, respiratory and speech therapy, pharmacy and social work services. If services provided through formal contractual arrangement are considered, most of these hospitals also provide histopathology laboratory, blood bank, optometric, and intravenous admixture services. Most other services are provided in at least several of these hospitals.

- Geographic Location. Twenty of the 33 hospitals are in Massachusetts and all are in States on the central or northern east coast, from Virginia northward.

- Institutional Histories. One group of facilities appears to be descended from tuberculosis and polio hospitals--that is, from hospitals founded to solve specific, large-scale health problems. Some of these facilities had been almshouses earlier. A less common institutional history is of nursing homes upgraded to hospitals. In these cases, the nursing home has sought to expand its function in response to new patient populations and the costs of caring for them. The transition to a hospital almost always entails a change in (State) licensure category as well as Medicare certification. When, in contrast, a tuberculosis hospital becomes a long term hospital, such adjustments may be unnecessary.

- Patterns of Ownership. Chronic-care hospitals include both public and private hospitals. The public hospitals are city, county, and State institutions. The private hospitals include facilities sponsored by religious orders, benevolent associations, and foundations. About half of this group are government-owned.

- Variations in Bed Size. About half house chronic-care hospital beds alone. Others offer nursing home care, and one hospital was a tuberculosis unit attached to a psychiatric hospital. In some facilities, all nursing home beds are assigned to a single level of care. Other hospitals comprise a mix of SNF, ICF, and personal care beds. There would seem to be a relationship between bed mix and ownership: exclusively chronic-care hospital facilities are almost exclusively public. Perhaps only public hospitals have constituencies large enough to support entire institutions. Another possible interpretation is that private facilities seek double licensure and certification to maximize their ability to respond to changes in the chronic care market.

Patterns of Care. Patients receiving care in chronic-care hospitals would appear to follow one of several distinctive patterns of care. First, there is a set of patients who receive care after an episode of acute illness and treatment at an acute-care hospital. These patients are too ill to be cared for at home or in a nursing home but no longer require acute-care services. If Medicare-eligibles, these patients are reimbursed on a cost basis until benefits are exhausted. Patients

may also be eligible for Medicaid, which pays hospitals for costs or on a prospective basis, depending on State policy. Private third-party payers cover some patients.

A second pattern locates the chronic-care hospital along a continuum of care. Patients are admitted 1) from nursing homes unable to provide sufficient care, or 2) from rehabilitation hospitals once all possible rehabilitation has been achieved. Different hospitals are more or less integral to local continuum of care. Sometimes a single facility offers several levels of care, or share a campus with acute care hospitals, nursing homes, and specialized housing. For others, the continuum can span the community or even the State. Truly indigent patients often become dependent on State and county hospitals as do patients whose multiple disabilities put them beyond the mandate of any private facility.

Anecdotally, there is a possible third pattern of care--to simply remain in acute-care hospitals. There is some suspicion that some LOS outliers could be cared for more appropriately and less expensively in long-term hospitals. Similarly, potential chronic-care hospital patients may go untreated or under-treated in nursing homes. Long-term hospital patients are often seriously ill and unlikely to recover. But depending upon the mix and availability of treatment settings in any one area, similar types of patients may receive close attention in highly developed medical setting, or meet with resigned inactivity where medical resources are inappropriate or scarce.

In short, chronic-care hospitals are characterized by their capabilities to respond to the need for heavy care over time. This need has been met somewhat

idiosyncratically over time, for a variety of reasons: particular institutional histories, changing payment system incentives, State licensing and certification procedures, and the development of life-extending technologies. Their mandate is most often to accomodate the mandates of other health care providers, and to adjust to the exigencies of a rapidly changing health care delivery system. As with rehabilitation facilities, there is little evidence on the efficiacy of care in these facilities. There have been no well-grounded cost benefit or cost-effectiveness studies of chronic-care hospitals. For now what can only be stated with any certainty is that the rapidly changing delivery system environment promises to shape further this group's provision of chronic hospital-level care.

Impact Analysis

HCFA is presently conducting an analysis of the Medicare PATBILL files for FY 1984, in order to evaluate the impact of Medicare reimbursement under TEFRA--i.e., Medicare exclusion status--and under a simulated PPS where the episode of hospitalization (and so payment rate) extends across both an acute stay and a long-term hospital stay. The importance of Medicaid payments for this heterogenous category of hospitals remains unclear, although in some states the levels of payment could be substantial.

Implications/Recommendations for Policy

Because this class of hospitals treats a very heterogenous patient population and does not share a common set of facility characteristics, the development of a separate classification system for prospective payment purposes would appear to

be both infeasible and undesirable. At the same time, the current HCFA impact analysis is investigating the feasibility of including long-term hospitals under the current PPS, where their cases would be expected to be paid predominantly under the PPS outlier policy. Their inclusion under PPS appears both prudent and feasible to the extent that a majority of these excluded facilities might apply under a different exclusion category (e.g., rehabilitation) and that Medicare represents a marginal payer--because of Medicare benefit limits--in the remaining facilities. A challenge that remains, however, involves the issue of how to reimburse two facilities--i.e, the acute care hospital and the chronic-disease hospital--for what in most regions of the Nation would be a single hospital stay.

The issues of the linkage of the chronic-disease hospital with the general hospital and the extremely skewed geographic distribution of chronic-disease hospitals raise policy concerns similar to those discussed above for rehabilitation facilities. The linkage of acute and post-acute health care services, both hospital-level and SNF-level, requires further research and analysis. The development and testing of appropriate classification systems and/or payment options can then follow. As with research on rehabilitation facilities, these options must be integrated with existing opportunities for capitated payment systems and future policy developments that follow from the Administration's plan for overall Medicare reform.

Finally, HCFA remains committed to extending the PPS to excluded hospitals to the greatest extent possible and will continue to investigate alternative case mix methods and payment approaches towards accomplishing this end. As Medicare beneficiaries continue to join capitated systems, however, this policy direction becomes less important.

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